Wisdom at the source of the Blue Nile

Ee-JRIF

Ethiopian e-Journal for Research and Innovation Foresight

Skills Performance, Cognitive Science, ICT, Gender Equity, Amharic Language for Africa and SDGs

Volume 11: Number 1
2019

Ethiopian Institute of Textile and Fashion Technology
Bahir Dar University, Ethiopia
http://eitex.bdu.edu.et/

ISSN: 2042-6356

Phonotactic Syllabification Systems of English and Amharic Languages and A Case for Language of African Union for Africa

Failanmi Olufunso Tosin [1] Famuyiwa Ayodele Tolulope [2]
[1] Solarin University and Tai, Nigeria
[2] Department of Women and Children Research- Centre for Research in Education and Communication, Tai, Nigeria
([*]Author for correspondence: toluladez @gmail.com)

Abstract: Phonotactics sets rules for proficiency in language usage, especially in English Language, (a foreign language) and Amharic an African Language. This study sets out to analyse the phonotactic presence and similarities in their syllabic systems, for possibility of Amharic emerging as a language of African Union to replace English language during summits and international conferences, albeit as a starter. Many linguists, especially the Nigerian noble laureate Prof. Wole Soyinka have suggested other African languages like Swahili. This is an effort to prevent our indigenous knowledge from going into extinction. The justification for suggesting Amharic here is the natural and originality of the Geez feedel or script form where Amharic alphabetic system was developed. It is indigenous to Africa, with its origin in Axum, Ethiopia. Amharic shares some linguistic features of sounds like vowel sonority with English language and it is easy for anyone with proficiency in English to understand the Amharic sounds articulation and their acostic allophonic references. The exploration of this unfamiliar terrain is worthy of consideration as a policy innovation for cultural and linguistic emancipation. The objective therefore is to contribute to the current trends in innovation in the area of language development in African continents. It is one of our own indigenous languages, widely spoken and its origin is African. The researchers used scripts developed online; Wikipedia, books, personal contacts and information from the indigenous people of Ethiopia. These were selected through purposive research design. Syllabification Theory, Chomsky's Theory of transfer and Contrastive Analysis were used for the study. Findings revealed that the similarity of sounds of English and Amharic makes it easy to understand the syllabification system of Amharic conforms with the composite structure of English and most world languages that combine consonants and vowels sounds. The tone and rhythmic patterns of the suprasegmental features add greater value to its musical cadences, especially when children speak during Amharic language lessons. It is therefore recommended that since Amharic language, based on our findings is suitable as a possible language of African Union. By this, it will continue to spread from Ethiopia to the rest of African nations and its sub-regions as an African linguistic identity.

Keywords: Phonotactics innovation, National language, proficiency, phonology, syllabification, acoustic, suprasegmental.

1. INTRODUCTION

1.1. Brief Historical Background

African languages are rich in cultural values and indigenous knowledge which represent the identities and mind of the people. However, where there is intrusion of a colonial language, especially in multilingual, multi-cultural nations like Nigeria colonised by (Britain), Benin (France), Cameroon, (French), South Africa (Britain), Ghana (Britain) among others, having their indigenous languages and other challenges, proficiency in the colonial language cannot be guaranteed. Although English, the official language of some of these countries have solved some linguistic problems in multilingual states, the problems created are quite enormous, thus playing down the positive roles that these colonial languages would have achieved.

Ethiopia, the only country in Africa that was never colonialised by any country also use English to keep the pace with other users of English as a world language and sadly so, since Africa has not yet evolved a national language of its own. Perhaps someday it may come into fruition. The legacy of colonization, it is being spoken and learned far away from its native environment and it is being taught mostly by non-native speakers. For these reasons and others, near-native accent proficiency remains an uphill task. English language today is a conglomeration of other languages of other countries, through loan words and lexical borrowings. Most languages fall into this category of primary existence. Some African languages derived their alphabet from the Latin alphabet as a result of the contact language English. Ethiopian languages have their own distinct 'feedel' or script known as the Geez. It is the legacy of the moribund Giiz language which other nations and nationalities adopted and use till today. The English language consonants and vowels have their phonemes and phonetic representations for pronunciation and speech, the same way Amharic language has sounds derived from the Geez alphabets for pronunciation (morpho-phonemics). Pronunciation is the basis for analysing the sounds of a language while sound in itself is an abstract concept. Thus, symbols are assigned to sounds for identification and systematic documentation. Thoughts and intention, initiated is blurted out through noisy outbursts called "sound", meanings are then attached the sound based on the sound system of the particular language and the linguistic repartior shared by the participants in the speech act.

In effect, the phonotactic pronunciation is language determined. An example is the IPA symbols International phonetic Alphabet symbols adopted as the standard for English pronunciation. Any other pattern is considered deviant from the British English. Chomsky's Theory of Transfer analysed positive and negative transfer. While positive one is proactive and facilitates learning, negative transfer is retroactive and inhibits effective learning. This is called interference Also Daniel Jones made an entries of sound pronunciation for phonemes and gives phonetic illustrations of some sounds of English. Examples like (Kw) in /KwƏliti/ quality (Ph) in peter /pitƏ/. (aspirated K and labialized k).

The Geez 'feedel' or script also provides sources for Amharic sound system that make learning easy for non-native speakers and learners of Amharic language. The phonotactic sets the boundaries for sound combination within a syllable system acceptable to a particular language. Thus, the syllabic system is language determined. The Amharic syllabic system is our focus as researchers tried to use some language theories to explain how sounds are

combined in English language syllable system. This is our purpose for translating of Amharic words into English, for easy analysis of the Amharic sounds, to establish their similarities and differences.

1.2. Brief Historical Background of English Language

The history of English language in Africa and its influence spread across some African nations and its sub regions. However, Ethiopia has continued to use their mother tongue as their official language, in addition to English, to downplay English language dominance after surviving colonization attempt by Britain and Italy. Fasanmi, (2018) 'observed that lack of proficiency either the spoken or written forms of English has continued to pose a challenge for African users of English as a second language' (ESL).

Albert C. Bauch (1951) in his account of the history of English language traced its existence from the Romanization of the island of Britain which gave birth to the Latinized English in Britain, Teutonic invasion "(Bede and Anglo-Saxon Chronicle'). The Teutonic Tribes were the Jutes, Saxons and Angles – the Anglo-Saxon Chronicle a clear account of how Angles occupied the Eastern coast and by the year 547 established an Anglian kingdom on the Northern side of Humber and Thames by the 5th century. The word Angles (OE) Engle was used for the tribes that were invading them giving them the name Angeleynn (Angle-kin or race of Angles). After the Danish period of about 1000 years, the name Engla-land, meaning 'land of the Angles' came into existence. English language that came into existence as a fusion of all the dialects spoken by the Teutonic tribes that invaded England at that period in time "English language belongs to the low west, Teutonic branch of the Indo-European family; indo here referred to the Eastern Teutonic Gothic. The Goths spread from the Vistula to the shore of the Black sea.

The language spoken by the Celts living in Graul by the time Caesar conquered them is known as Gallic. It was replaced by Latin, with the Julian alphabet, which most African nations adopted after colonization by Britain. The English language alphabet use 24 consonants, 12 pure vowels and 8 dipthongs for speech sounds production.

The consonants are (p,b,t,d,k,g), plosives /f,v,ø,ð,s,z,/, fricatives /tʃ,dʒ), palato-alveola affricate, nasal stops /m,n,ŋ/, /l/ lateral alveola, /j/ palatal, /w/ approximant, /h/ glottal, /r/ retroflex or tap.

Vowels – /i,I,æ:u,u:,), כ ,, , ɜ:,ə) Diphthongs – /ai, ei,au, כi, ea, Əu, uƏ, iƏ / These speech sounds "phones" are combined in speech as consonants and vowels. The vowel is the nucleus of the syllabic structure. It is obligatory. This will be analysed in our texts.

1.3. Brief Historical Background of Amharic

The Omniglot, online Encyclopaedia of Writing Systems and languages recorded that 25million people speak Amharic (coqci) (amarƏrina) in Ethiopia. Other countries are Eritrea, Canada, USA, and Sweden. It is the national language of Ethiopia and the Amharic was invented at the district of (Axum) Transliteration of the language was done by Ernest Hammer Schmidt, EAE transliteration system was developed by Aethiopica and the BGN/PCGN. This system was developed at the period of Romanizing names written in Amharic characters and it was adopted by the United Nations (UN) in 1967.

The Amharic language of the Semitic branch is a member of the Ethiosemitic group

spoken as mother tongue by the Amhara and other major cities in Ethiopia. (Wikipedia): It uses 33 basic characters each comprising 7 different forms depending on the vowel chosen to be used along with it for pronunciation. (Ethiopia Alphabet-cyber Ethiopia 2007). The alphabet is called Ethiopic, dated back to 100BC and it was used to write Geez literary ecclesiastical languages as is being used in Eritrea, Tigre and Tigrinya. It is written from left to right. The 26 letters are used to represent consonants. This can serve as syllabic symbols when a vocalic marker, (vowel or syllabic vocoid) is attached to the letters. Oromo and Wolaita are also Ethiopian languages, but they are not widely spoken like Amharic.

Amharic Abugida (C2A) right now the unique calendar of Ethiopia is 75years behind the Romanic calendar. We are all in year 2008, by that calendar. The Ge'ez script have been used to write these languages, Amharic, Argobaa, Awngi, Blin, Dizin, Harari, Inor, Silte, Tigre, Tigrinya, Xantanga (Omniglot online encyclopedia). It is obvious that the number may increase as more countries learn Amharic language and look forward to Amharic as a national language for African Union and perhaps for Africa scholars. The number of alphabets in the Ge'ez script is twenty-seven (27). This is a close number to English sounds alphabet which is 26, 21 consonants and five vowels from where the IPA symbols derived 26 consonants, 12 pure vowels, 8 diphthongs and three diphthongs are used.

The Geez alphabet derived its sounds from the 27 alphabets where 1-unit alphabet can be used to generate other sounds. Once, one understands the first sound others are easy to generate. They are '(a) u, i, a, E, I, o. from these sounds others can be generated in a syllable structure. They are generated vertically and horizontally. The above sounds are the horizontal ones while the vertical ones include: (h,i,h,m,s) (r,s,sh,Q,b) (t,ch,h,n,n) (a,k,h,w,a) (s,T,ch,p,ts,p) (z,zhe,y,d,dj) (tz,f,p). (Lion of Judah society) Wikipedia.

These alphabets are represented in syllabic system of Amharic language as each of them is generated in five different ways with the link to the first alphabet. To learn a language is a complex issue because language itself is complex. It is left for a learner to find out in the course of learning how certain alphabet or sounds are combined or allowed for the purpose of using the particular language. These two sounds as observed by Hay (2009), /t/ and /s/ as in tsunami a Japanese language is not allowed in such combination in English. "Amharic is the second most widely spoken Afroasiatic Semitic language in the world after Arabic". (Phillipson and Skutnabbkangs (1995), It is the official language of the Federal Republic of Ethiopia and many regions, military and the Ethiopia Orthodox Tewahido church. Amharic originated at Axum. It is spoken in Gonder, Gojam, Wallo and Shown among others.

Amharic is indigenous to 23% of the populace but because it serves official purpose, it is spoken by the whole nation. Afan Oromo (Cushite language) is indigenous to about 33% largest indigenous language and its expansive spread justifies historical fact that Ethiopia was never colonized by any other country of the world. Amharic serves both the "defacto" functions (basic needs) (Hirut Woldermarism 2008). And de jury function for its official status. The syllable structure of Amharic explains the combination of sounds in groups and the rule remains that one has to pick from one of the groups as required for pronunciation.

2. RESEARCH ETHODOLOGY

2.1. Pronunciation Phonotactic

Since all languages are rule-governed in their spoken and written forms, phonotactic constraints in English and Amharic pronunciation will be analysed with scripts culled from Wikipedia. The researchers made personal contacts with the indigenous owners of Amharic language in Ethiopia, the Eastern Africa and other sources.
The work is a purposive research type and texts selected from Wikipedia series. Information gathered through personal contact is also purposive. This is to have original speakers input to authenticate the veracity of the research. Our choice of the data is also purposive. Our texts are the Geez feedel or 'script' sourced and translated into English language.

2.2. Syllabification Phonotactics

Phonology can be referred to as the scientific study of sound patterns (Chomsky, 1968). Over hundred (800) speech sounds are used across the world and that linguistic aspect phonology is that it is a linguistic science study that describes discreet sound patterns and the rules that are applicable to the sound combination allowed by the language in focus. It is the tasks of learners to find out the sound that can be used together during speech act, as stipulated by the writing and speech system of such language. This is a phonotactic boundary. Hay (2009) observed that language is rich in regularities and that learners are well equipped to track that means, to sort and select the relevant blends. Freederic and Wessees (1993) Jusczyet al 1993, 1994) corroborating this also observed that language is organized according to phonotactics patterns and are regulated on how they are structured and strung together within words; and that they differ across languages and must be learned. He gave example of consonants clusters in English likes st,fr,cl Curtin And Hufriage (2009) also explained phonotactics in terms of the co-occurrence allowed by specific language in different syllable positions. e.g. 'pt' cannot occur initially in English but can come finally in a word like kept.

There are types of writing recognized globally, logographic, syllabic and alphabetic. A syllable has been defined by many scholars; it is the least able chest pulse st, fr, cl, unity of a word, the breath pulse per outburst of air from the lungs and the vocal chords. Chomsky and Halle 1968: 354, Crimson 1989, Gussmann 1991 and Wells 1995 in Zoe Tsoft defined syllable as consisting of a vocalic centre optionally accompanied by a consonants onset or coda either of which may be complex (of sell irk 1982 / 1999:329) Blevins 1995 : 216).

They observed that in most language every syllable has a vowel as its nucleus, the centre. However, they opined that some languages allow segment which cannot be traditionally considered as vocalic to form the nucleus of a syllabic structure. They gave examples of in /B^tn/ and /L/Inm^dl and referred to them as syllabic consonants. We shall also analyse some Amharic words to verify if such occur syllable vocoids in the language phonotactically, the vowel is the syllabic sound that forms the peak of a syllable. It is the sonority level of the nucleus; the consonants form the onset and code as earlier on mentioned if the particular language in use have it. (Vowel Wikipedia) vowels determine the quality, loudness and length of the code types like tone intonation and stress. Phonetically, a vowel is released with open vocal tracts, frictionless while consonants are released with friction, sound like S, dʒ,f,v,t,s,Θ,ɔ. Phonologically , the vowel is the sound which forms the peak of a syllable. An equivalent of this is the non-

syllabic sounds called semi vowels e.g. (w,j) no constriction in the vocal tract, they come at the beginning, onset of a syllable e.g /jes/ yes and /wet/ wet. This translates to indicate that they are consonants but functioning as vowels. Kenneth pike (1994) gave the name vocoid to phonetic vowels and vowels to phonologically vowels hence (j) and (w) can be described as vocoids instead of vowel. The composite structure of the English vowel phonotacties (C0-3VCo-4) indicates the boundaries set for consonant clusters i.e. 3 clusters before the vowel and 4 clusters finally as in the word $\frac{str}{ccc}\frac{e}{v}\frac{ngthene}{cccc}$ here the first 3 s,t,r precede /ę/ vowel while the last letter from n to dnd (elision an and assimilation of the vowels are applicable. Other combination can be boy $\frac{/bɔi/}{cv}$ plumber $\frac{/plʌmɔ/}{ccvcv}$ e.t.c. it is noteworthy to say that most Amharic words conform with the syllabic system of English language Examples are stated below.

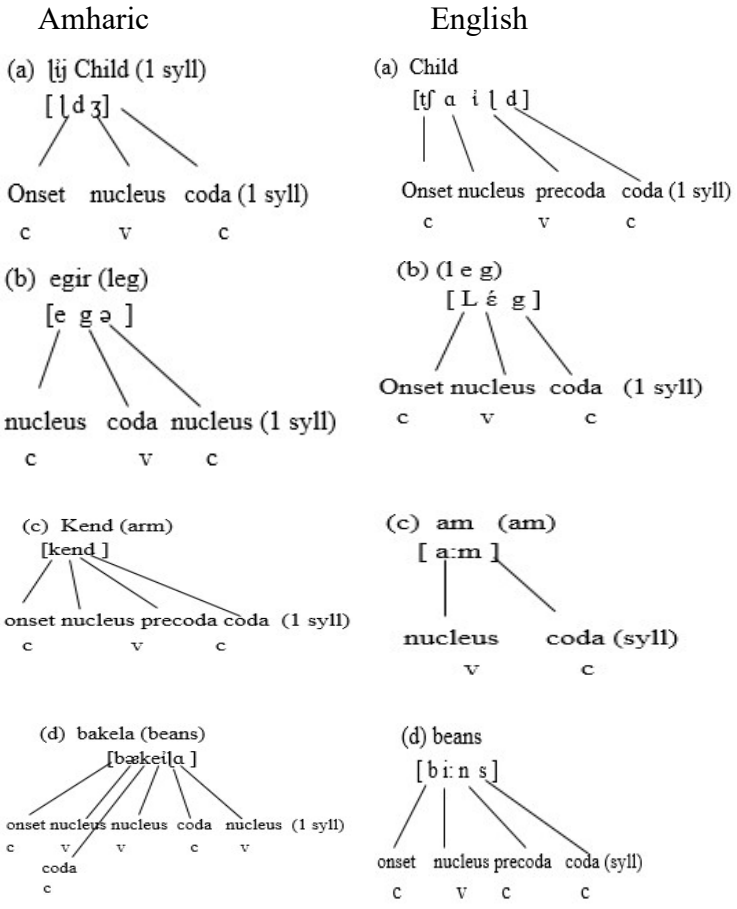
3. FINDINGS

The study tried to see the syllabic systems of Amharic and compared it with the systems of English to see similarities and differences in terms of conformity with the global arrangement of conformity with the word order of consonants and vowel combination within the syllable systems during articulation.

3.1. Features of Amharic language

Amharic use 26 characters from Suberean script to make up for the set used. One very important feature of the Amharic is the gender recognition attracted to both female and male addressees like in French language during speech act. This feature manifest in the writing and pronunciation of Amharic words as individual word and words within the sentence structure. Thus, within the written syllable the gender must be selected and this also happen during spoken Amharic, French i.e languages garcon. (a boy) and la fille (a girl) also in student (male student) and student (female student). However, our focus here is the syllables structure of Amharic language in comparism with English language in writing and perhaps in pronunciation.

3.2. Script on Monosyllabic and Polysyllabic Words



(e) Simish man new

What is your name?

[s m i ʃ]

onset nucleus precoda coda (1 syll)

c v v c v

(En-gu dye)

Mushroom

(i n g u d æ)

Nucleus preonset onset nucleus coda

(e) What is your name?

[w ɔ t iz j ɔ: neim]

onset nucleus precoda coda (syll)

c v c

onset

mushroom

(m ʌ ʃ r u: m)

onset nucleus coda onset nucleus coda (2 sylls)

(f). Yena Sem Ola

[Jene Sem Ola nju]

Onset nucleus Coda

C V C Onset Syllabic-Vocoid nucleus

c v v

Vocoid nucleus Coda nucleus

V v c V

(f) My Name is OLA

[mai neim iz] OLA

Onset nucleus nucleus Coda

C v Onset nucleus Coda v c

C v c

(g) ayn (eye)

[a i n]

nucleus Coda

V C

1 syll)

(g) (eye)

[a i]

nucleus

(1 syll)

(h) af (mouth)

[æ f]

nucleus Coda

V C

1 syll)

(h) (mouth)

[m au e]

onset nudeus Coda

C V C

(1 syll)

(l) gulbet (knee)

[gulbet]

Onset nucleus onset Coda

C V C C

coda nucleus

C V

(2 sylls)

(l) (knee)

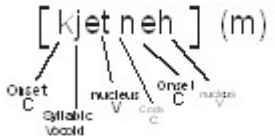
[ni:]

Onset nucleus

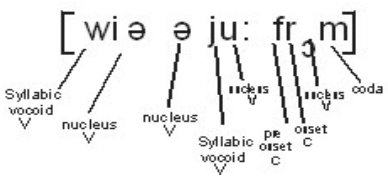
C V

(1 syll)

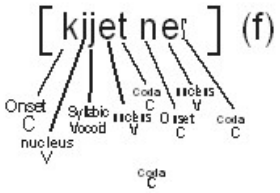
(j) kyet neh?
where are you from?



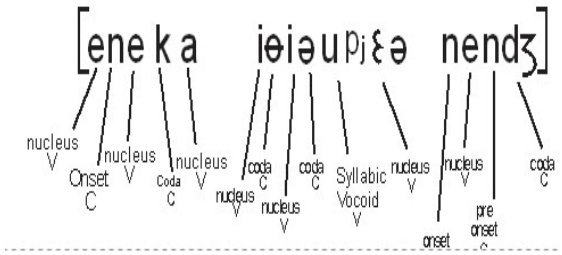
(j) where are you from?



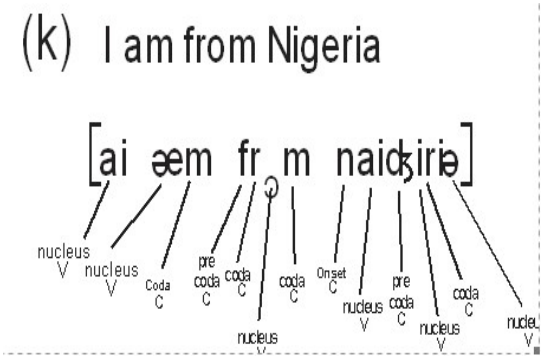
kyet neh?
where are you from?



(k) Ene k Ethiopia nence

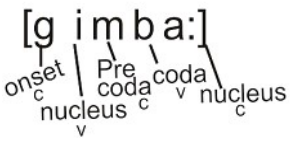


(k) I am from Nigeria



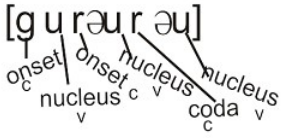
Amharic

gimber (forehead)



(2 sylls)

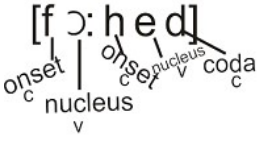
(m) guroro (throat)



(3 sylls)

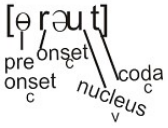
English

(forehead)



(2 sylls)

(m) throat

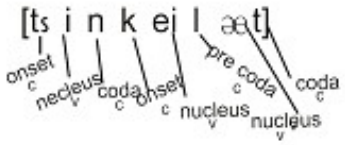


(1 sylla)

(n) Amharic (Ethopia language) (n)

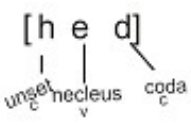
(3 sylls)

(o) chinkellat (head)



(3 sylls)

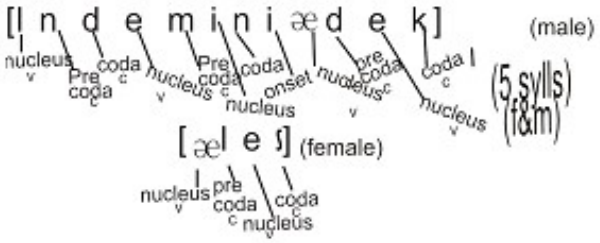
(o) (head



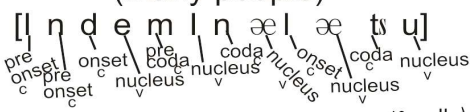
(1 sylla)

(p) endemin alek (male)
endemin Alesh (female
(good morning)

(p)

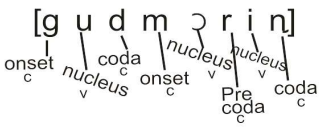


(q) Endemin alachu
(many people)



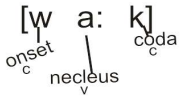
(3 sylls)

(q) good morning



(3 sylls)

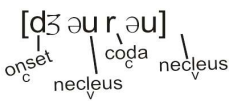
(r)
indemin walk (many people afternoon)



(1 sylls)

(r)

(s) joro (ears)



(2 sylls)

(s) ears

(1 sylls)

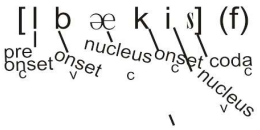
(t) anget (neck)

(2 sylls)

(t) (neck)

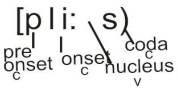
(1 sylls)

(u) l'bakish (f) please
L'ba khe (m)



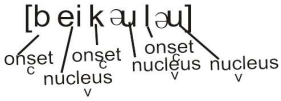
(3 sylls)

(u) please



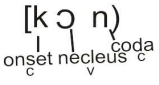
(1 syll)

(v) be ko lo

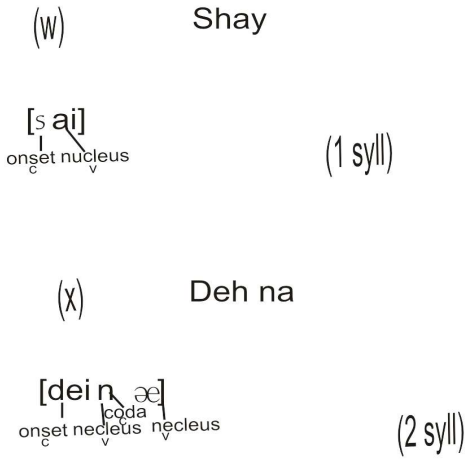


(3 sylls)

(v) corn



(1 syll)



These sets of examples revealed at a lot of features in Amharic sound combination with English IPA symbols of English language that will enhance the spread if English speakers in Africa can learn it. There are consonant clusters just like we have it in English language. The lengths of the syllables are also similar to the English syllable length if one considers the number of alphabets that make a syllable in Amharic language (the sounding of the Amharic words).

The choice of masculine and feminine gender options does not affect understanding of the pronunciation because mostly few sounds alteration occurs to denote the gender of the person being addressed. (However, on telephone the acoustic signal may be misinterpreted because sometimes a female voice is mistaken for a male speaker and vice versa. This does not downplay the beauty of the language as the acoustic effects are very interesting in sonority, amplitude frequencies and pitch. These can be measured in decibels e.g cpc hartz (cycles per seconds). A tool for measuring loudness and pitch of sound in the laboratory. The musicality effects attached to the online teaching of Amharic for kids in the ha ha se formerly online even make it more interesting to learn. As it is any second learner of a language learns exactly like a child that is from the beginner class. 'The alphabet' just like English, the selected scripts (keelem) revealed phonotactics of an intervocalic sound (nucleus and semivowels (i.e. syllabic ovoid w, r, j and ambisyllabic sounds (i.e sound that function in preceding and syllables that is next. There is aspiration of sounds, assimilation and co-occurrence in some pronunciation that occur if a drastic step to have a national language for Africa, the colonial languages will continue to dominate and the problems of proficiency will continue to stay nate development of people. The fact remains that English as a world language is serving good purpose of bridging linguistic gaps in multilingual, multicultural African nations, however an evolved Africa language too can suffice, perhaps Amharic language of Axum Origin in Ethiopia. There are long and many syllables representing words in Amharic and English. Also, there are some words in Amharic that share pronunciation and meanings, or pronunciation with different meanings for instance:

Shay (Amharic) Shai (Nigeria Hausa language)
Both languages pronounce them as (ʃai)
Mean - tea

Karya Amharic
kaya (Nigeria Hausa language)
(pepper)
load
Both languages pronounce them as (k a i j a)
(2 sylls)
Mean - load

4. CONCLUSION

Since many countries like Ethiopia, Canada, Argobba, Awngi, Blin, Dizin, Harari, Inor, countries outside Africa are already using the Geez alphabet in their countries it is likely to serve wider countries in Africa to the extent that it can serve as a lingua franca for Africa in general, as the language of the AU during annual summit (starting form there)

RECOMMENDATIONS

- Amharic language can be adopted by other African nations, first as an official language side by side with colonial languages where they exist.
- English can be used to teach Amharic to achieve a faster spread while the Geez alphabet can be introduced as teaching progresses in schools
- The education policies of Africa nations can include Amharic language, while the language policy should make provisions for facilities, fiscal and human resources for teaching take off in African continents, if it is eventually adopted for education and spoken media widely in Africa
- Other indigenous languages can also be used to avoid politicizing Amharic inclusion

References

Albert. C Baych (1951), A history of the English language (2n edit), England Routledge and Kegan Paul ltd, Henleg on Thomas, Oxon RG9, EN.

Bender, et al (1976), The Ethiopian writing system in Bender et al language in Ethiopia, London, oxford university pp 120-128.

Blevin (1995) Omniglot online encyclopedia. https://www.omniglot.com

Chomsky and Haller 1968, Crimsuun 1989, Gussman 1991 Wells 1995 in zoesoft (onhu Engclopaedia.

Chrystal, D (2001) The Cambridge Encyclopedia of the English language Cambridge University press.

Collins (2006) Easy learning French conversation Harper Collins publishers, Great Britain, Glasgow.

Fasanmi O. T. (2018) State of the Art Technology, language laboratory phonotactics and higher education: English language learning and laboratory phonotactics. In journal of language and literary studies, English Department, Mountain Top University, Lagos, Nigeria. Vol 1 (2).

Freederic and Wessees (1993) Jusczyet et al 1994 Omniglot online Encyclopedia.

Friederici and Wessels 1993, Jusczyk et al (1993, 1994) Phonotactics, Science Direct, Topics.online, Encyclopedia.

Hirut Woldermarism (2008) in Omniglot online encyclopedia.

Hirut, W (2007) Language matters studies in the language of Africa. Vol 38, 2007-issue 2 pp210-235 online encyclopedia.

Omniglot online Encyclopedia hay (2009) in Encyclopedia.

Omniglot The online Encyclopedia of writing systems and languages https://www.omnislot.com.

Phillipson and Skutnabbkangs (1995) in Omniglot online Encyclopedia.

Roach, P (2009) English Phonetics and Phonology (A Pratical course) 4th edition, United Kingdom, Cambridge university press.

Rockeys (1993) Phonetics lexicon and online pronunciation dictionary beeps.

Thomas Bloor and Wondwosen Tamrat (1995) issues in Ethiopian language policy and education in journal of multilingual and multicultural development vol17, 1995, issues published online. www. Tandfonline.com>doi>abs.

Zoe Toft O. Phonetics and phonology of some syllabic consonants in Southern British English, school of oriental and African studies, London, University of London.

ICT, Development and Poverty Nexus in Africa: Way Forward

Nosiru O.M[1] Sodique F.R[2 *]
[1,2] Department of Agricultural Science, Tai Solarin University of Education, Ijebu Ode, Ogun State, Nigeria

([*]Author for correspondence: nosiruom@tasued.edu.ng)

Abstract: Information and Communications Technologies (ICTs) have proven very important in every facet of development. It has become a critical tool in almost all areas of human endeavours that engender development through reduction of poverty. Africa has been known as an impoverished continent in spite of its abundant resources. Hence, it is imperative that an investigative study be carried out to know ICTs effects on development and poverty reduction, especially in Africa. This study was carried out to investigate the inter-relationship existing among ICT, development and poverty. It employed cross-sectional dataset of 43 African countries. The study used descriptive statistics, Cobb Douglas production function and three-stage simultaneous equation to analyse the data. It also made use of student's t-test for the test of hypotheses. It was observed that mobile subscription, internet access and adult literacy positively and significantly influenced ICT development. Also, mobile subscription, adult literacy and per capita GNI (gross national income) positively and significantly influenced human development. However, inequality level negatively and significantly influenced both ICT and human development. Inequality level positively and significantly affected poverty, while internet access had significant negative influence on poverty. Lastly, the study showed a significant association between ICT development, human development and poverty level in Africa. Conclusively, ICT development and poverty rate were significantly inversely related. It was concluded that African governments should embark upon programs and policies that would incorporate ICT and education programs which would improve the livelihoods of their peoples with all required sincerity of purpose.

Keywords: ICT, human development, poverty rate, Africa

1. INTRODUCTION

Africa is endowed with abundance of both human and material resources. These are pre-requisite to economic growth and development. However, amidst these abundant resources the continent grapples with greatest problems of poverty. Poverty in Africa is both awkward and ludicrous. In spite of the fact that the continent boasts of several resources ranging from crude oil, gold, diamond, countless mineral resources, agricultural and forest resources to mention few, poverty rate is most predominant in Africa (Pew Research Centre, 2015). The major factors that may be accountable for this incidence of poverty are lack of access to information and gaps in skills compared

to the rest of the world. These hamper the process of embracing available technologies, and reduce the technical efficiency of productive practices. It is therefore vital to consider the relevance of information and communication technologies (ICTs) in condensing these gaps. Annan (2002) stated that new ICTs were among the dynamic forces of globalisation that bring people together, and also enhance decision making process. This is not without the support of remarkably innovative tools to facilitate development. Conversely, there is expanding gap which concurrently subsists between the information 'haves' and 'have-nots'. Such gap would definitely result in severe menace in the segregation of the poor from the promising knowledge-based global economy.

The developed countries have 22 percent of world population and control over 85 percent of the global internet usage. The remaining 15 percent is being shared among the 78 percent residing in the developing third world. Africa only struggles with less than ten percent of global internet usage (Internet World Stats, 2016) while it has more than 20 percent of developing world's population (Wikipedia, 2016).

ICTs open up innovative prospects to lessen poverty. International Institute for Communication and Development (IICD) (2005) reported the use of radio and internet in giving out market price information. This has given small-scale producers better bargaining power and also enhanced the communication proficiency for development. ICTs are helpful for endowing the people with useful environmental information such as climatic conditions and natural disasters. ICTs provide better opportunities to the poor through easier access to better health and education services which reduce their propensity to be poor (Harris, 2004).

ICTs have pervaded all sectors of the economies. The effects are felt in virtually all areas of industrial activities. The features and scope of their adoption have been plausibly explored in recent times (e.g. Mpofu and Gono (2016); Benabderrahmen, Brahmi and Hmida (2016); Makiwa and Steyn (2016)). Nonetheless, Africa has been bedeviled with inadequacy in similar research. This kind of study in Africa has been dealt with in too few research works (e.g. Ismail, Jeffery and Van Belle (2016) and Nalumaga (2016)). This information is valuable in understanding the inter-links that exist among the trio of ICT, development and poverty in African continent, which has not been adequately investigated. Hence, this study intends to fill part of the gap. The aim of this study is to investigate into the factors that affect ICT development, human development and poverty incidence in Africa, as well as examine the inter-relationships existing among the trio.

Hypotheses

(i) There is no significant relationship between ICT development and poverty.
(ii) There is no significant relationship between human development index (HDI) and poverty.
(iii) There is no significant relationship between ICT

development and human development.

2. Review of Literature

Several studies have been carried out on the effects of ICTs on development and poverty in both developed and developing countries. These studies are of enormous assistance in the conduction of this study. UNDP (2002) demonstrated that information technologies have been used in India for poverty eradication. Such information was basically on weather predictions, rainfall patterns, meetings and workshops which were reported to be made available via ICT. It was noted that limited level of literacy had hampered use of ICT. Munyua (2000) asserted that traditional and modern ICTs could be used concurrently to hasten the information flow. It was discovered that inconsistent and incomprehensive ICT was a major hindrance to development. On the other hand, Kole (2000) found that African women's organizations needed to repackage information from the Internet and redistribute such orally, or by the use of traditional print publications, radio and television. Harris (2004) reported that governments and civil society organizations successfully utilized ICTs in reducing poverty in Brazil. The ICTs were said to be used in knowledge management and sharing of best management practices. United Nations (2006) also reported that automation of land ownership enhanced cheaper and quicker access to statements of land holdings. It was further stated that though ICTs offer vast development opportunities, those that were mostly in need of them often have the least access to them. UN (2006) listed the low income groups, rural communities, women, and those with no formal education as categories of people with least access to ICTs. Huyer et al. (2005) affirmed that Guinean and Djiboutian women represented less than 10 percent of the Internet users; less than 20 per cent Nepalese women used internet; and less than one-quarter Indian women were users of internet. Sagna (2005) identified rural dwellers as been neglected with respect to internet services. UNDP (2001) revealed that the well-educated persons were most chanced in usage of internet services. It was affirmed that 89 percent of Chilean internet users were those who had tertiary education. Kenny et al. (2000) argued that there was link between development of telecommunications and economic development.

The ICT sector has been disclosed to have significant impact in developing countries. Burgess and Pande (2005) and Levine (2005a, b) showed that ICTs were used in the agricultural sector for food and agricultural production. They also revealed that ICTs improved access to financial services which significantly impact on economic growth and poverty reduction. Aker and Mbiti (2010) and Sen and Chowdhary (2011) observed that exploiting of mobile money in Kenya by households helped in management of negative livelihood shocks. Aker and Mbiti (2010) and Chavula (2012) revealed the outcome of mobile technology developments on farmers' livelihood. They showed that mobile phones helped farmers to compare market prices for grain and fish which helped them to guard against spoilage and

waste by effortlessly locating the consumers. Halewood and Surya (2012) discovered that ICTs resulted into 36 percent increase in farmers' and traders' earnings. ICT also helped them to have access to price information. ICTs were also found to facilitate agricultural growth through enhancement of market interaction efficiency and provision of access to information that resulted in better pricing proficiency. This was achievable by employing trading platforms on the internet by means of web/mobile applications (Driouchi et al., 2006). McKinsey (2013) reported that online virtual market resulted in improved revenues. This was achievable through phone or SMS. Addo-Dankwa (2002) confirmed that ICTs enhanced increased revenues of small and medium enterprises and improved management practices through access to information. Chowdhury (2000) illustrated ICTs as means of combating poverty and child malnutrition by guaranteeing accessible information to the household, particularly the mothers.

Flor (2001) stated that human poverty index had inverse relations with the number of telephone lines, personal computers and TV sets per 1000 persons. Also, it was observed that the value of ICT indicators was inversely related with poverty rank. ITU (2002) revealed existence of digital dichotomy within countries, between developed and less-developed regions, between urban and rural areas, between the poor and the rich, between the educated and the illiterates, between genders, and between the young and the old. Yunus (2008) envisaged that the future of poverty would be determined by the technological devices and services that were intended for the poor. There would be increased potentials if individuals or groups have the inherent capacity to be able to apply new technological resources (Warshauer, 2003), which are also enhanced by ICT usage. Spence & Smith (2009) suggested that ICT-enabled communications built human potentials and provide economic services, as well as personal, family and social interactions. Ssewanyana (2007) found a positive correlation between investment in ICTs and economic growth. Also, it was established that there was relationship between telephone usage and economic growth, and that households without ICT were more likely to be poor compared to their counterparts with ICT. Dalvit et al. (2007) reported that an e-commerce platform had tendency to contribute to rural development and poverty alleviation. Kwapong (2008) showed that efficient use of ICT was crucial to any reliable effort for enhancing higher levels of growth and development of human condition.

Even though ICTs have the potential to reduce the digital divide within and between countries and regions, Torero and von Braun (2005) asserted that ICTs and their benefits are not yet getting to the poor countries at the same magnitude as the developed countries, especially the poor rural areas. ICTs have been said to have the potentials to contribute to the development of socioeconomic conditions in developing countries through reduction of costs of information sharing, enhancement of timely accessibility and provision of prospects for network creation between people who share

particular information needs. In spite of established ICT success in helping to cut rural poverty, priority has not been accorded to rural ICT development (von Braun, 2010). The effects of ICTs for rural households were listed to include time and resource savings, access to better information resulting to better decision making, enhancement of better efficiency and productivity (Tschang et al. 2002; Andrew et al. 2003; von Braun, 2010), and expanded market reach (von Braun, 2010). Jensen (2007) demonstrated that availability of information to fishermen through mobile telephones in Kerala had consequence on market performance by improving the welfare of the people, enhancing more resourceful allocation of the catch along the markets, and decreasing price variation. Aker (2010) reported that the introduction of mobile phones was associated with 20 percent decline in grain price disparity across markets in Niger. Camacho and Conover (2011) found that when farmers in Colombia received regular price and weather information through text messages they had a significant drop in crop failure. Beuermann (2011) also asserted that availability of payphones in Peru villages elevated rural income by about 16 percent, which was ascribed to decline in information asymmetries between farmers and traders. Goyal (2010) linked the prevalence of ICT adoption by firms and households with improved market performance which was accompanied with resultant improved resource allocation and prompt growth. However, Forman et al. (2012) opined that Internet investments tended to worsen income inequality between regions. De los Ríos (2010) indicated that Internet users experienced faster income growth than non-users. May et al. (2011) found that gaining access to ICTs is associated with 2.5 percent improvement in household's poverty status. Di Maggio and Bonikowski (2008) and Mossberger et al. (2007) confirmed the connection between ICT skills and earnings. ICT has a significant impact to socio-economic performance of countries and regions, and has tendency to impact positively on economic growth as shown by these literatures.

3. METHODOLOGY

The study makes use of cross-sectional data from forty-three African countries. The selected countries were those with complete information with respect to all the variables necessary for the study. The variables considered include ICT development index, mobile cellular subscription, internet bandwidth, adult literacy level, GNI per capita, inequality level, human development index (HDI) and poverty level. The data were obtained from International Telecommunication Union, United Nations and World Bank databases for 2015. Descriptive statistics were used to consider the average, minimum and maximum levels of the aforementioned indices. Cobb-Douglas production function was used to show the factors that influenced ICT development, HDI and poverty among the selected countries. Also, a three stage least square estimation that examines a simultaneous equation model was used to reveal the links that exist among ICT development, HDI and poverty.

The analysis employed for this study follows the works of Yeh (2009), Al Farooque et al. (2005) and Obi et al. (2016). A system of simultaneous equation is considered suitable for two main reasons. Firstly, the model helps to increase the efficiency of the estimates compared to single-equation models. Secondly, the model helps to check the robustness of the results obtained by single-equation methods (Benos, 2004). Furthermore, t-test was used to test for the hypothesized relationships between poverty and ICT development, poverty and HDI, and HDI and ICT development. The models for the Cobb-Douglas production function can be stated thus:

LnQ = lna0 + a1lnx1 + a2lnx2 + a3lnx3 + a4lnx4 + a5lnx5----------(1)

lnY = lna0 + a1lnx1 + a2lnx2 + a3lnx3 + a4lnx4 + a5lnx5---------- (2)

lnZ = lna0 + a1lnx1 + a2lnx2 + a3lnx3 + a4lnx4 + a5lnx5----------(3)

The three-stage simultaneous equation is stated thus:

Q = α + b11x1 + b12x2 + b13x3 + b14x4 + b15x5 + b16Y + b17Z + e1---------- (4.1)

Y = β + b21x1 + b22x2 + b23x3 + b24x4 + b25x5 + b26Q + b27Z + e2---------- (4.2)

Z = γ + b31x1 + b32x2 + b33x3 + b34x4 + b35x5 + b36Q + b37Y + e3---------- (4.3)

Where, Q is used for ICT development index; Y = Human development index (HDI); Z = poverty status (can be computed by with poverty index); x1 = mobile subscription (number of subscriptions of mobile telephones per 100); x2 = access to internet (bandwidth); x3 = adult literacy (percent); x4 = GNI per capita (dollars); x5 = inequality level (Gini coefficient); ai's, bij's = coefficients of the parameters to be estimated; α, β and γ are the constants.

4. RESULTS AND DISCUSSIONS

Table 1. The mean, minimum and maximum values of development indices for African countries

Indices	Maximum	Minimum	Mean	Number of countries below mean	Percentage of countries below mean
Literacy level	95.30	31.9	69.3	17	39.53
ICT development index	5.41	1.17	2.71	28	65.12
Mobile subscription/100	210.37	6.39	89.36	23	53.49
Internet bandwidth	149542	27	11054.19	34	79.07
Inequality level	63.4	30.8	43.71	26	60.47
Poverty level	76.8	8.0	42.77	21	48.84
HDI	0.78	0.39	0.54	27	62.79
GNI per capita	13990	250	2805.47	29	67.44

According to the table as depicted in Table 1, 65 percent of the selected African countries had below 2.71 average value of ICT development index; 53 percent had below average mobile subscription per 100; 79 percent had below average internet bandwidth; about 63 percent of the countries were below average HDI; and 67 percent had less than average GNI per capita on the continent. Also, about 60 percent of the countries had above mean literacy level; about 40 percent had above average inequality level; and about 51 percent had greater than average level of poverty.

Table 2. Determinants of ICT development in Africa

Variables	Coefficient	Standard error	t-statistic
x1 (mobile subscription)	0.3306	0.0588	5.6238***
x2 (access to internet)	0.0681	0.0218	3.1190***
x3 (adult literacy)	0.5629	0.1370	4.1100***
x4 (GNI per capita)	0.0503	0.0389	1.2929
x5 (level of inequality)	-0.3914	0.1738	-2.2522**
Constant	-2.3623	0.6994	-3.3777
R2 = 0.8299; Standard error = 0.1734; N = 43; Dependent variable = ICT development			

*** - 1% level of significance

Table 2 presents the determinants of ICT development in Africa. The most significant factors that influenced ICT development in the continent were mobile subscription, access to internet, adult literacy and level of inequality within individual countries in the continent. The result showed that a percentage increase in mobile subscription resulted in 0.33 percent increase in ICT development. A percentage point increase in internet bandwidth had 0.06 percent resultant increase in ICT development; while 1 percent point increase in adult literacy resulted into 0.56 percent increase in ICT development. However, a percentage point increase in level of inequality within respective countries resulted in 0.39 percent decrease in ICT development.

It could be implied that increased volume of mobile subscription and internet bandwidth enhanced ICT development in the continent. It could also be implied that improvement in literacy level of adult Africans would result in improvement in ICT development in the continent. On the other hand, the implication of negative coefficient of level of inequality was that unequal distribution of wealth within African countries would slow down the development of ICT in the continent. The R2 value implies that the exogenous

variables were responsible for about 83% variations in the endogenous variable.

Mauritius, Seychelles, South Africa and Tunisia were examples of countries that had high ICT development index which were accompanied with high levels of mobile subscriptions, internet bandwidths, and literacy levels. The countries except South Africa had inequality levels that were lower than African average. Most of the countries that had high inequality levels had low ICT development index. On the other hand, countries like Djibouti, Togo, Zambia, Mozambique, South Sudan, Guinea Bissau and Malawi had low ICT development index that were accompanied with low mobile subscriptions, low internet bandwidths, low levels of literacy, and high levels of inequality.

Table 3. Determinants of human development in Africa

Variables	Coefficient	Standard error	t-statistic
x_1 (mobile subscription)	0.0904	0.0251	3.5948***
x_2 (access to internet)	0.0152	0.0093	1.6219
x_3 (adult literacy)	0.2624	0.0586	4.4779***
x_4 (GNI per capita)	0.0890	0.0166	5.3533***
x_5 (level of inequality)	-0.1445	0.0743	-1.9443*
Constant	-2.3817	0.2992	-7.9603
R^2 = 0.8743; Standard error = 0.0742; N = 43; Dependent variable = Human development			

*NB: *** - 1% level of significance; * - 10% level of significance*

Table 3 presents the determinants of human development in Africa. The most significant factors that influenced human development in the continent were mobile subscription, adult literacy, per capita GNI and level of inequality. The result showed that a percentage increase in mobile subscription resulted in 0.09 percent increase in human development. A percentage point increase in per capita GNI had 0.09 percent resultant increase in human development; while 1 percent point increase in adult literacy resulted into 0.26 percent increase in human development. On the other hand, a percentage point increase in inequality level resulted in 0.14 percent decrease in human development.

It could be implied that increase in volume of mobile subscription resulted in improvement of human development in Africa. Also, any policies that engender increase in per capita GNI has high tendency to improve human development. Moreover, education had been a very crucial tool for human development; hence, any government

that sincerely desires development of its citizenry must enshrine education programs in its policies. On the other hand, the result implies that unequal distribution of income is a bane to human development in Africa. The R2 value implies that the exogenous variables were responsible for about 87% variations in the endogenous variable.

Mauritius, Seychelles, Gabon and South Africa were examples of countries that had high HDI that was attended with high levels of mobile subscription, GNI per capita and adult literacy. All these countries had relatively high HDI with low inequality levels except South Africa. Countries that had high inequality levels with low HDI include Zimbabwe, Lesotho, Zambia, Rwanda and Guinea Bissau. However, Botswana and Namibia had high inequality levels accompanied with high HDI.

Table 4. Determinants of poverty status in Africa

Variables	**Coefficient**	**Standard error**	**t-statistic**
x_1 (mobile subscription)	-0.0805	0.1427	-0.5645
x_2 (access to internet)	-0.1295	0.0530	-2.4432**
x_3 (adult literacy)	-0.5295	0.3324	-1.5930
x_4 (GNI per capita)	-0.0877	0.0943	-0.9293
x_5 (level of inequality)	0.9841	0.4217	2.3336**
Constant	4.2554	1.6973	2.5072
R^2 = 0.6684; Standard error = 0.4208; N = 43; Dependent variable = poverty status			

*NB: ** - 5% level of significance*

Table 4 presents the determinants of poverty incidence in Africa. The most significant factors that influenced incidence of poverty in the continent were access to internet and level of inequality within individual countries in the continent. The result showed that a percentage increase in internet bandwidth had 0.13 percent resultant reduction in poverty in the continent; while a percent point increase in inequality level resulted into 0.98 percent increase in poverty.

It could be implied that increase in the level of internet bandwidth would engender a significant reduction in poverty rate in Africa. On the other hand, the result implies that unequal distribution of wealth is an impious stimulant to poverty incidence in the continent. The R^2 value implies that the exogenous variables were responsible for

about 67% variations in the endogenous variable.

Countries like Zambia, Lesotho, Guinea Bissau, Zimbabwe, Togo, Equatorial Guinea, Eritrea and Nigeria were instances of occurrence of low internet subscriptions and high inequalities which were accompanied with high level of poverty. On the contrary, countries like Mauritius, Seychelles, Tunisia, Cape Verde, Morocco, Algeria and Gabon had low poverty levels that were coupled with high internet bandwidths and low levels of inequality.

Table 5. Determinants of ICT development, human development and poverty, and their inter-relationships

Variable	Q (ICT development)	Y (Human development)	Z (poverty status)
Q (ICT development)	--	0.0960	-0.8813**
Y (Human development)	0.4781	--	-1.1876
Z (poverty status)	-0.1500**	-0.0406	--
x_1 (mobile subscription)	0.2753***	0.0554*	0.3181*
x_2 (access to internet)	0.0415*	0.0034	-0.0515
x_3 (adult literacy)	0.3581**	0.1869***	0.2781
x_4 (GNI per capita)	-0.0055	0.0806***	0.0623
x_5 (level of inequality)	-0.1747	-0.0671	0.4676
Constant	-0.5854	-1.9824	-0.6546

*NB: *** - 1% level of significance; ** - 5% level of significance; * - 10% level of significance*

Theoretically, the three dependent variables in Tables 2 – 4 may not be isolated from one another. Practically, all the three variables interconnect among themselves. The result of simultaneous equation (Table 5) showed the inter-relationship among the dependent and independent variables. The variables that significantly influenced ICT development were poverty rate, mobile subscription, access to internet and adult literacy. All of these variables positively influenced ICT development, except the rate of poverty which had an inverse relationship with ICT development in the continent. The variables that had significant influence on human development were mobile subscription, adult literacy and per capita GNI. All these variables were directly related to human development within the continent. The variables that significantly influenced rate of poverty in Africa were ICT development and mobile subscription. ICT development had an inverse relationship with poverty rate in the

continent, while mobile subscription had direct relationship with rate of poverty. This direct relationship between mobile subscription and poverty rate is unexpected. It may imply that mobile subscription is more common among the rich than the poor in the continent. In addition, this result summarily implies that poverty is a curse against every form of development on African continent. Examples of countries that had high ICT development accompanied with low poverty levels were Mauritius, Seychelles, South Africa, Tunisia, Cape Verde, Morocco, Algeria, Egypt, Ghana, Botswana and Namibia. Cases of countries that high poverty levels attended with low ICT development were Nigeria, Senegal, Gambia, Congo Republic, Mali, Equatorial Guinea, Togo, Zambia, Rwanda, Liberia, Mozambique, Burkina Faso, Congo DR, South Sudan, Guinea Bissau, Malawi, Madagascar and Eritrea.

Table 6. Correlation and significance of relationship between various pairs of poverty, ICT and human developments

Items	Poverty & ICT development	Poverty & Human development	ICT development & Human development
Correlation	-0.6363	-0.6785	0.8525
t Statistic	41.7361	21.0085	41.0861
t Critical	2.0181	2.0181	2.0181
Decision	Reject H_0	Reject H_0	Reject H_0

Table 6 revealed high but negative correlation coefficients between poverty and ICT development, and poverty and human development. However, there is a positive and high correlation between ICT development and human development. The t-Statistic values which are higher than t-Critical values show that the earlier stated hypotheses should be rejected. In other words, there are significant relationships among the variables.

5. CONCLUSION

The study has displayed significant relationships between ICT and human development and poverty. ICT is very vital in improvement of human development and reduction of poverty level in Africa. However, poverty has offered disservice to every form of development in the continent. Therefore, it is very crucial that all poverty alleviation programs should be taken seriously and embarked upon passionately. Finally, the study has shown that ICT in itself cannot solve African poverty problem. An enduring solution could only be achieved

through improving the living standard of African people, and by sufficiently supporting the educational system within respective African nations. Based on the findings from this study, the paper recommends the following:

- Governments of African countries should integrate ICT with the poverty alleviation programs being embarked upon. They should go beyond lip service to actually committing themselves to implementing such programs.
- Education must be considered as a major tool for socio-economic development which ought to be given due prominence by all stakeholders, if lasting development is desired.
- ICTs should be effectively incorporated into schools' curriculum at all levels. African countries should integrate ICT education into their education policies.
- ICTs should be made an integral part of most entrepreneurial activities especially in rural sector which is the geographical domain of the poor. This would bring about reduction of information asymmetry between the rural entrepreneurs and the well-endowed urban businessmen.
- Telecommunication service providers should fashion out plausible ways whereby tariffs would be reduced and internet and communication services would be improved with respect to volume and quality of networks.

References

Addo-Dankwa, E. (2002). E-commerce in Ejura: What has a farmer got to do with a computer? *ICT Stories*. March 2002. http://www.iicd.org/stories/

Aker, J.C. (2010). Information from markets near and far: mobile phones and agricultural markets in Niger, *American Economic Journal: Applied Economics*, 2, 46-59.

Aker, J.C. and I. Mbiti (2010) Mobile Phones and Economic Development in Africa, *Journal of Economic Perspectives,* 2010.

Al Farooque, O., T. van Zijl, K. Dunstan and W. Karim (2005). A simultaneous equations approach to analyzing the relation between ownership structure and performance in Bangladesh, *Working Paper* No. 35, Centre for Accounting, Governance and Taxation Research, School of Accounting and Commercial Law, Victoria University of Wellington, Wellington, New Zealand.

Andrew, R., A. Burn, J. Leach, T. Locke, G. Low and C. Torgerson (2003). *A system review of the impact of networked ICT on 5-16-year-olds' literacy in English*. EPPI-Centre, Social Science Research Unit, Institute of Education.

Annan, K. (2002). Information and communication development: Information society surmit. p.7.

Benabderrahmen, I., M.B. Brahmi and M. Hmida (2016). Explanatory factors determining ICT adoption level in Tunisian textile companies. *Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport* 4 (1): pp.1-7, doi: 10.12691/jbe-4 1-1

Benos, N. (2004). *Fiscal policy and economic growth: empirical evidence from OECD countries*. University of Cyprus, February 2004.

Beuermann, D. (2011). Telecommunications Technologies, Agricultural Productivity, and Child Labor in Rural Peru. *Mimeo*.

Burgess, R. and R. Pande (2005). Do rural banks matter? Evidence from the Indian social banking experiment. *American Economic Review* 95(3): 780-795. http://dx.doi.org/10.1257/0002828054201242

Camacho, A. and Conover, E. (2011). The Impact of Receiving Price and Climate Information in the Agricultural Sector. *Research Department Publications* 4720, Inter-American Development Bank, Research Department.

Chowdhury, N. (2000). Poverty Alleviation and Information/Communications Technologies. December 2000. Towards a Motif for the United Nations ICT Task Force http://www.eb2000.org/short_note_19.htm

Dalvit, L., M. Thinyane, H. Muyingi, and A. Terzoli (2007). The deployment of an e-commerce platform

and related projects in a rural area in South Africa, *International Journal of Computing and ICT Research*, vol. 1 no.1, pp. 9 – 18, June, 2007.

De Los Ríos, C. (2010). *Impacto del uso de internet en el bienestar de los hogares peruanos: Evidencia de un panel dehogares, 2007–2009.* Lima, Peru, and Ottawa, Canada: DIRSI and IDRC.

Driouchi, A., E. Azelmad and G.C. Anders (2006). An econometric analysis of the role of knowledge in economic performance, *Journal of Technology Transfer*, 31:241-255. http://dx.doi.org/10.1007/s10961-005-6109-9

Flor, A.C. (2001). ICT and Poverty: The Indisputable Link. –Paper for the Third Asia Development Forum on "Regional Economic Cooperation in Asia and the Pacific" by the Asian Development, 11-14 June 2001 Bangkok.

Forman, C., A. Goldfarb and S. Greenstein (2012). The internet and local wages: a puzzle. *American Economic Review*, 102, 1, 556-575.

Goyal, A. (2010). Information, direct access to farmers, and rural market performance in Central India, *American Economic Journal: Applied Economics*, American Economic Association, 2(3):22- 45.

Halewood, N.J. and P. Surya (2012). *Mobilizing the agricultural value chain.* In 2012 Information and Communication for Development – Maximising Mobile, World Bank, Washington D.C.

Harris, R. (2004). *Information and Communication Technologies for Poverty Alleviation.* E-Primers for the Information Economy, Society and Polity. UNDP-APDIP.

Huyer, S., N. Hafkin, H. Ertl, and H. Dryburgh (2005). *Women in the information society*. In G. Sciadas (Ed.), From the digital divide to digital opportunities: Measuring info states for development (pp. 135–195). Ottawa, Canada: Orbicom/ITU. Retrieved November 8, 2005, from http:// www.orbicom.uqam.ca/index_en.html

International Institute for Communication and Development (IICD) (2005). *The TIC Bolivia Country programme*. The impact of IICD support for poverty reduction and development using ICTS, 2000- 2004.

Internet World Stats (2016). Usage and population statistics: Internet users in the world by regions, June 2016. www.internetworldstats.com/stats.htm

International Telecommunication Union (ITU) (2002). World Telecommunication Development Report 2002.

Ismail, R., R. Jeffery and J.P. Van Belle (2011). Using ICT as a value adding tool in South African SMEs. *Journal of African Research in Business and Technology*, Vol. 2011, Article ID 470652. DOI: 10.5171/2011.470652

Kwapong, O. A. T. F. (2008). Policy implications for using ICTs for empowerment of rural women in Ghana, *The Turkish Online Journal of Educational Technology – TOJET* 7(3), July 2008.

Jensen, R. (2007). The Digital Provide: Information (Technology), Market Performance and Welfare in the South Indian Fisheries Sector. *Quarterly Journal of Economics 122*(3): 879-924.

Kenny, C., J. Navas-Sabater and C.Z. Qiang (2000). ICT and Poverty, World Bank, Washington, DC. http://www.worldbank.org/poverty/strategies/srcbook /ict0829.pdf

Kole, E. S. (2000). African Women Speak on the Internet: Research Report Electronic Survey Women Action Africa prepared for WomenAction and APCAfrica-Women. Amsterdam, May 2000.http://www.xs4all.nl/~ekole/public/endrapafrin h.html

Levine, R. (2005a). *Finance and growth: theory and evidence*. In Handbook of Economic Growth, ed. Philippe Aghion and Seven Durlauf. The Netherlands: Elsevier Science.

Levine, R. (2005b). Finance and growth: theory and evidence. *NBER Working Paper* 10766. www.nber/papers/w10766. Accessed December 2012.

Makiwa, P. and R. Steyn (2016). *ICT adoption and use in Zimbabwe SMEs.* IST-Africa 2016 Conference Proceedings, Paul Cunninghamand Miriam Cunningham (Eds), International Information Management Corporation.

May, J., V. Dutton and L. Munyakazi (2011). Synthesis report cross section 2, *Poverty and Information & Communication Technology in Urban and Rural Eastern Africa (PICTURE-AFRICA): case studies from Kenya, Rwanda, Tanzania and Uganda,* unpublished PICTURE Africa report.

McKinsey (2011). Sizing Africa's agricultural opportunity. In Four lessons for transforming African Agriculture, *McKinsey Quarterly,* April, 2011. McKinsey and Company.

Mossberger, K., C. Tolbert and R. McNeal (2007). *Digital Citizenship*: The Internet, Society, and Participation. Cambridge: MIT Press.

Mpofu, K. and S. Gono (2016). Exploring ICT adoption by SMEs in Southern Africa. LSBM *Working Paper Series,* Vol. 1, January 2016, www.lsbm.ac.uk/wps

Munyua, H. (2000). Application of ICTs in Africa's agricultural sector: a gender perspective. In E. M. Rathgeber and E. O. Adera (eds.) (2000) Gender and the information revolution in Africa. Ottawa: International Development Research Centre (IDRC), Chapter 4. http://www.idrc.ca/books/focus/903/07-chp04.html

Nalumaga, R. (2016). iSchools and Africa: trends and development. *Bulletin of the Association for*

Information Science and Technology, Vol. 42, Issue 4, April/May 2016, pp. 17-21. DOI:10.1002/bul2.2016.1720420406

Obi, K.O., D.N. Yuni and O.A. Ihugba (2016). Inflation and growth nexus in Nigeria: an investigation into the simultaneous relationship. *International Journal of Development and Economic Sustainability* 4(3):25-32.

Pew Research Centre (2015). *Poverty rates are highest in Africa and Asia.* Global Attitudes and Trends. www.pewglobal.org/2015/07/08/a-global-middle-class-is-more-promise-than-reality/pg-2015 07-08_globalclass-07/

Sagna, O. (2005). *From the Digital Divide to Digital Opportunities: Measuring Infostates for Development.* Orbicom, Montreal (Quebec), Canada, p. 73.

Sen, S. and V. Chowdhary (2011). *ICT applications for agricultural risk management.* ICT in Agriculture Sourcebook. Washington D.C., World Bank.

Spence, R. and M. L. Smith (2009). ICTs, human development, growth and poverty reduction: *A background paper,* IDRC. Available at http://www.idrc.ca/en/ev-139409-201-1-

Ssewanyana, J.K. (2007). ICT access and poverty in Uganda, *International Journal of Computing and ICT Research*, 1(2):10 – 19, June, 2007.

Torero M. and J. von Braun (2005). ICT: Information and Communication Technologies for the poor. *International Food Policy Research Institute (IFPRI) Issue Brief* No. 40.

Tschang, T., M. Chuladul and T. Thu Le (2002). Scaling-up information services for development: a framework for increasing returns for telecentres, *Journal of International Development,* 14(1): 129–141.

UNDP (2001). *Human Development Report 2001*. Making New Technologies Work for Human Development p. 40.

UNDP (2002). *Human development report 2002: Deepening democracy in a fragmented world.* New York: Oxford University Press.

United Nations (2006). *UNDP human development report 2006, beyond scarcity: Power, poverty and the global water crisis,* United Nations Development Programme, New York.

Von Braun, J. (2010). *ICT for the poor at large scale: innovative connections to markets and services,* in A. Picot and J. Lorenz (eds.), ICT for the Next Five Billion People: information and communication for sustainable development, Springer: Heidelberg, chapter 2, pp. 3-14.

Warschauer, M. (2003). Social capital and access. *Universal Access in the Information Society,* 2 (4).

Wikipedia (2016). Africa. Wikipedia, the free encyclopedia. https://en.wikipedia.org/wiki/Africa

Yeh, C. (2009). The simultaneous evolution of growth and inflation. *International Conference on Applied Economics – ICOAE 2009*

Yunus, M. (2008). *A poverty free world—When? How?* Romanes Lecture at Oxford University. Available at http://muhammadyunus.org/speeches/a-poverty-free-world-when-how/

Gender Equity and Equality: A Crucial Role for Africa Moving Towards Sustainable Development Goals (SDGS)

Oluwatoyin Adeola Adeogun [1] Adeseye Alademerin[2 *]
[1] National Business and Technical Examination Board, South West Zonal office, Ibadan, Oyo state, Nigeria
[2] Tai Solarin University of Education, Ijagun, Ogun state, Nigeria
([*]Author for correspondence: igadwa@gmail.com)

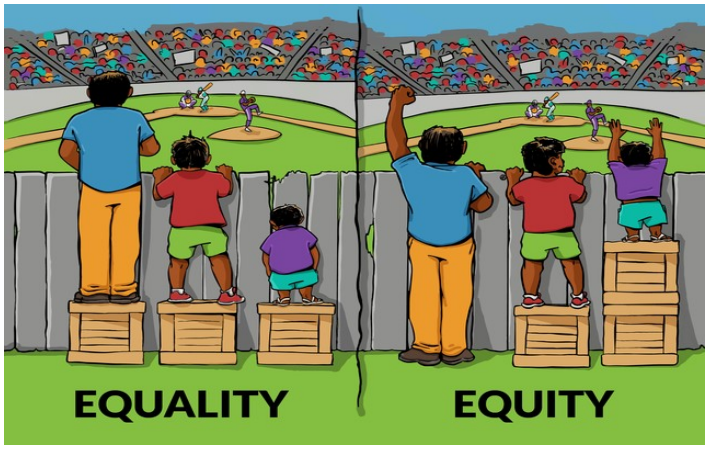
Abstract: Gender is social differences between men and women that influence their roles, responsibilities, constraints, opportunities and needs of women and men in a society, community or social group. Gender equality involves women and men have equal power in life. Gender inequality is caused by socio-cultural, educational, economic, biological and religious factors and all these factors are still very prevalent in Africa. There is a gap between women and men in Africa in terms of access to resources such as land, capital, knowledge and technologies that could boost their agricultural activities and enhance their productivity thereby solving the problem of food security, self-reliance and independence in life. The income generated from access to fundamental assets can be reinvested on food, school expenses, clothing, fuel and overseeing family health. Violence against women and girls make them to be more vulnerable to sexually transmitted diseases such as HIV and AIDS, maternal death and child trafficking can be controlled when women and girls actualize their rights which influence their decision making in the households, communities and society. The involvement of women in political processes helps in achieving sustainable peace, democracy and prosperity of the nation. Women are custodian of indigenous knowledge for the management of natural resources including forest and their products thereby enhancing biodiversity. Gender-based discrimination affect employment rate among women increasing the poverty level in Africa. The transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs) is an important process that can be achieved in Africa through gender equality that would promote unity for sustainable development. This paper takes a cursory look at the meaning and concept of gender, gender equality, gender inequality, gender and associated issues under the MDG's and the journey so far, expectations under the SDG's particularly in areas of empowerment and development issues etc. Suggestions and recommendations are made for various national governments, individuals as well as other corporate institutions alike.

Keywords: Gender, Gender equality, discrimination, biodiversity, Sustainable Development Goals etc.

1. INTRODUCTION

1.1. Concepts of Gender Equity and Gender Equality in Africa

Gender equality ensures that different behaviour, aspiration and needs of women and men are considered valid and favoured equally. Gender equity ensures fairness of treatment for women and men according to their needs though different but considered equivalent in terms of rights benefits, obligation and opportunities (ILO, 2000). Gender equity is a practice and way of thinking that will help in achieving gender equality.



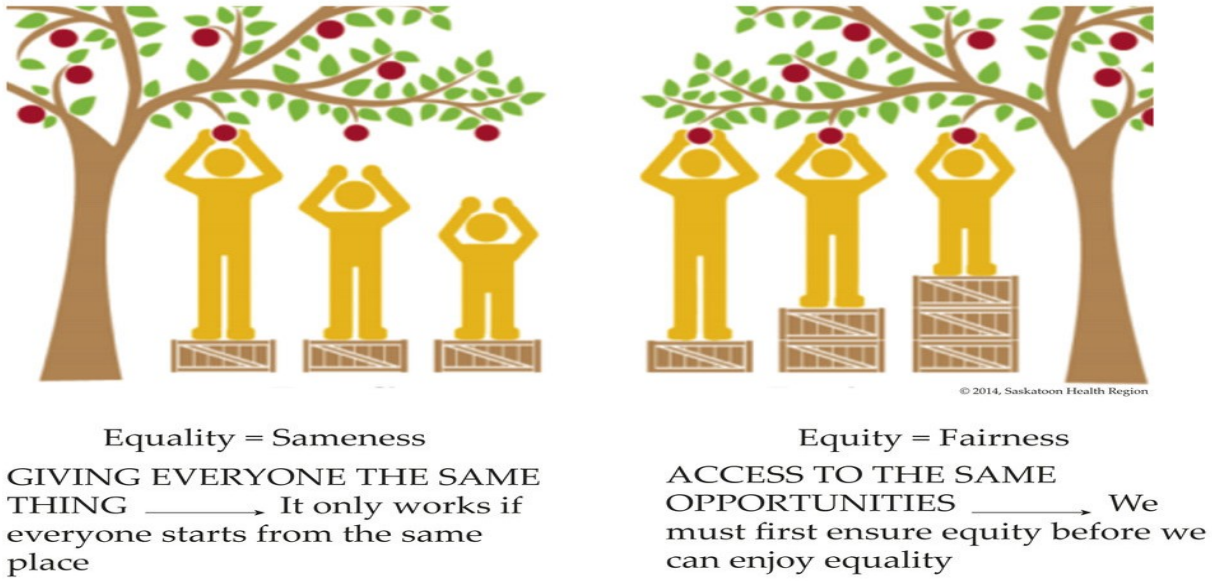


Figure 1. Source: Equity image credit: please note, this image was adapted from an image © 2014, Saskatoon Health Region

The above graphic illustrations clearly depict what gender equity and equality mean. The opportunities provided in the two illustrations better defines what the two concepts mean in our daily lives. There is gender gap in education, improved health, politics emancipation, labour force participations. In Africa, the rights of women and children are recklessly violated which leads to frustration, apathy violence and lopsided development and underdevelopment (NPC and UNICEF, 2001). Sub-Saharan Africa has more legal gender-based restrictions than Asia and Pacific, European and Central Asia (Demirguc-Kunt et al., 2013; Gonzales et al., 2015). Africa lost up to $ 105 billion

from gender gaps in labour markets alone, almost 6% of all production (Lusigi, 2018).

African women themselves have uniform outlook on gender relations, patriarchy and ways to improve their situation (Kimari et al., 2014). Equalizing access to education, health services, rights, labour forces, reduction in discrimination, and active involvement in politics will end gender gap thereby promoting sustainable development in Africa.

Agriculture is the backbone of Africa's economy, providing 70% employment (with women playing significant role and constituting up to two-third of the work force, women farmers have less access to farm inputs such as land, credit, fertilizer extension services and new technologies thereby making yields significantly lower than those of male farmers (AGI, 2015). Apart from agriculture, women spend more of their time caring for others than men thus suffering a greater deal of time with men having more leisure time than them. The men also invest more resources in themselves while women give priority to other (World Bank, 2001).

Women are interested in taking cares of family needs spending on chunk purchasing convenience goods while men's incomes are deployed for capital goods (World Bank, 2001). Women experience barriers such as restrictions on women's ability to access institutions (such as getting an ID card or conducting official transactions owning or using property building credit or even getting a job (Klugman, 2005). Gender equality in the workplace is the respecting of maternity right and reproductive right of women (Fawcett Society, 2012). The

employer always asks women to sign formal or informal document stipulating that they will not get pregnant or face legal punishment (Lawn 202/2002 Romanian Law). Women often face severe violations of their reproductive rights at the hands of the employers and international labour organization classified forced abortion coerced by the employer as Labour exploitation (ILO, 2017). Fifteen countries still have laws under which women are required to get their husband's consent to work including eight countries in Sub-Saharan Africa. Female labour force participation is lower in countries with more restrictions on working hours and the types of industries women can work in women participation is 10 percent the women point higher in countries with laws that mandate non-discrimination in hiring. The law is important for level the playfield informal employment and broadening women economic opportunities (World Bank, 2013).

In a broader sense, this paper takes a cursory look at gender in relation to developmental initiatives economically, politically and socially. The Sustainable Development Goals (SDGs) were developed by the United Nations after the Millennium Development Goals (MDGs) were found not to really capture the essence of the goals they were set up. There are 17 goals with 169 targets. The SDG no 5 specifically addresses gender in a broader sense. It states: Achieve gender equality and empower all women and girls. The targets include:

- End all forms of discrimination against all women and girls everywhere.

- Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation.
- Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.
- Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.
- Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.
- Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences.
- Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.
- Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.
- Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

We should learn at individual, community, local and national levels to put the rhetoric into real practice and in measurable ways. The full realization of the women rights are mentioned in every forum but how well are they implemented in all levels of our government from homes to the national level?

Women do 2.6 times more unpaid care and domestic work than men. While families, societies and economies depend on this work, for women, it leads lower earnings and less time to engage in non-work activities. In addition to equal distribution of economic resources, which is not only a right, but accelerates development in multiple areas, there needs to be a fair balance of responsibility for unpaid care work between men and women.

Sexual and reproductive rights are critical in their own right. Shortfalls in these multiply other forms of discrimination, depriving women of education and decent work, for example. Yet only 52 per cent of women married or in a union freely make their own decisions about sexual relations, contraceptive use and health care.

While more women have entered political positions in recent years, including through the use of special quotas, they still hold a mere 23.7 per cent of parliamentary seats, far short of parity. The situation is not much better in the private sector, where women globally occupy less than a third of senior

and middle management positions (UN Economic and Social Council (2017).

1.2. Gender Issues and Political Emancipation in African Countries

Political emancipation and political participation are two vital concepts which are fundamental and democratic sustainability. Quoting the works of Igwe (2002), Osimen Goddy Uwa et al (2018) indicated that political participation, is the degree and forms of involvement of the people in governance and related institutions of society, such as the economy and culture. In its active sense, it involves participation in political campaigns and debates, attending caucus or strategy meetings of political parties, voting during elections, standing as candidates for elections, and holding of government and party posts. These are both intrinsically related in that the extent to which women are politically emancipated – defined on terms of freedom and removal of obstacles to access to political right (Oni, 2014). The higher the level of women participation in politics and ultimately this has implication for their democratic sustenance and development. African women struggle in their relationship to the wider context of political, economic and social, change in the continent and seek to determine how economic and political forces shape women protest, this is including the resources, activities, modes of organization, the objective and claims the tactics, the discourages, farming and identify and the outcome of women mobilization.

For instance, South African women protested for better living condition in Polls moor prison, they also contested the racial prison; they also contest at the racial class and gendered system of discrimination and oppression under apartheid (Scott, 1990). The Senegalese women fight against illegal boat migration, they also speak out against polygamy and their spouse failure to provide for family expenditure (Bouily, 2016).

Aba women riot of 1929 in Eastern Nigeria was among early efforts at women emancipation in Africa (Amadi and Amadi, 2015). In Ghana like most African women Ashanti women have always been farmers, traders and politically active citizens controlling a network of market systems including one of the largest markets in Africa, Kumasi market with a trading population ranges between 15,000 and 70,000 (Amadi and Amadi, 2015).

The issue of gender and political emancipation of women are central to Africa at the dawn of the 21st century. The key historic moment was the election of a female president in Liberia Ellen Sir leaf Johnson as the first African female president in 2005 which seemed to enliven the hopes of women in top government positions (Amadi and Amadi, 2015). Women representation in Africa has increase from 10% to 17% while growth rate in some countries such as Nigeria remains stunted. In Burundi, there is 30% quota for women representation in the constitution while there is 50% local government (Igbuzor, 2014).

The women's movement has been able to build consensus around key issues of importance to women such as rights to livelihoods and economic empowerment, access to decision – making, reproductive

rights and health, non-discrimination and the critical importance of peace. In addition, scholars, activists, community leaders, writers, thinkers, professionals, rural women and politicians who were part of a progressive women's movement have been able to create body of knowledge through activism on women's rights and gender equality (Fayemi Bisi-Adeleye, 2013). In 2016, a Gender and Equal Opportunities Bill was tabled, calling for the adoption of Temporary Special Measures to eliminate discrimination in political and public life. UN Women supported the Bill's passage in five States (Anambra, Ekiti, Imo, Kogi and Plateau) and is currently advocating, alongside partners, for its adoption at the National Assembly (Osimen Goddy Uwa et al, 2018).

In announcing the line-up of his new cabinet, Prime Minister Ahmed in 2018 told the Ethiopian Parliament: "Our women ministers will disprove the old aphorism that women can't lead." Contrary to this old aphorism, he argued, women can help fight corruption, reduce inefficiency, and bring accountability and fairness to government - and that is leadership. Ahmed's latest decision to fill 50 per cent of his cabinet with female ministers is an integral part of the transformative agenda he has set out during his inaugural speech on April 2.

In an Al Jazeera's editorial stance, Awol K Allo recently scholarly work reviewed the representation of woman in Afaan Oromo and Amharic aphorisms, two of the most widely spoken languages in Ethiopia, depict a shocking portrait of a deeply rotten culture that casts women in a degrading and dehumanising light. A widely used Oromo proverb states "A woman can be tall but not knowledgeable". An Amharic proverb stays: "A woman does not know anything, but gives birth to a knowledgeable child."

There has been progress towards the equal representation of men and women in decision-making in the past ten years. According to statistics from UN Women, the percentage of women in parliament has nearly doubled in the last 20 years. As of January 2017, 10 women were serving as Head of State and nine were serving as Head of Government. Rwanda has, for over a decade, been topping the global list of countries with the most female political parliamentarians. That's mainly due to the country's legally set quotas, with the Constitution stipulating that at least thirty per cent (30%) of Deputies in the Lower House of Parliament must be women. Women in Saudi Arabia voted for the very first time in 2015 and were even allowed to run for public office.

So, are women better off staying home to cook and knit? Can they make decisions on what is right for their home, or on a bigger scale, nation? The latter is evident, with the past couple of strides serving as defining moments for women in the political sphere, with more of them stepping up and assuming key leadership positions.

While some forms of discrimination against women and girls are diminishing, gender inequality continues to hold women back and deprives them of basic rights and opportunities. Empowering women requires addressing structural issues such as unfair social norms and attitudes as well as

developing progressive legal frameworks that promote equality between women and men. (Report of the Secretary-General, the Sustainable Development Goals Report, 2018).

Table 1. Distribution of females Elected between 1999 - 2015 in Nigeria (Adopted from Osinem Goddy Uwa et al., 2018)

S/n	Position	No of available seats.	No. of women in 1999	No. of women in 2003	No. of women in 2007	No. of women in 2011	No. of women in 2015
1	Presidency	1	0	0	0	0	0
2	Senate	109	3(2.8%)	4 (3.7)	9(8.3%)	7(6.4%)	7(6.4%)
3	House of Representative	360	12(3.3%)	21(5.8 %)	26(7.2%)	25 (6.9%)	19 (5.2%)
4	Governorship	36	0	0	0	0	0
5	36 States House of Assembly	990	24 (2.4%)	40(3.9 %)	57 (5.8%)	68 (6.9%)	54 (4.6%)
Total		1532	28	67	94	99	80

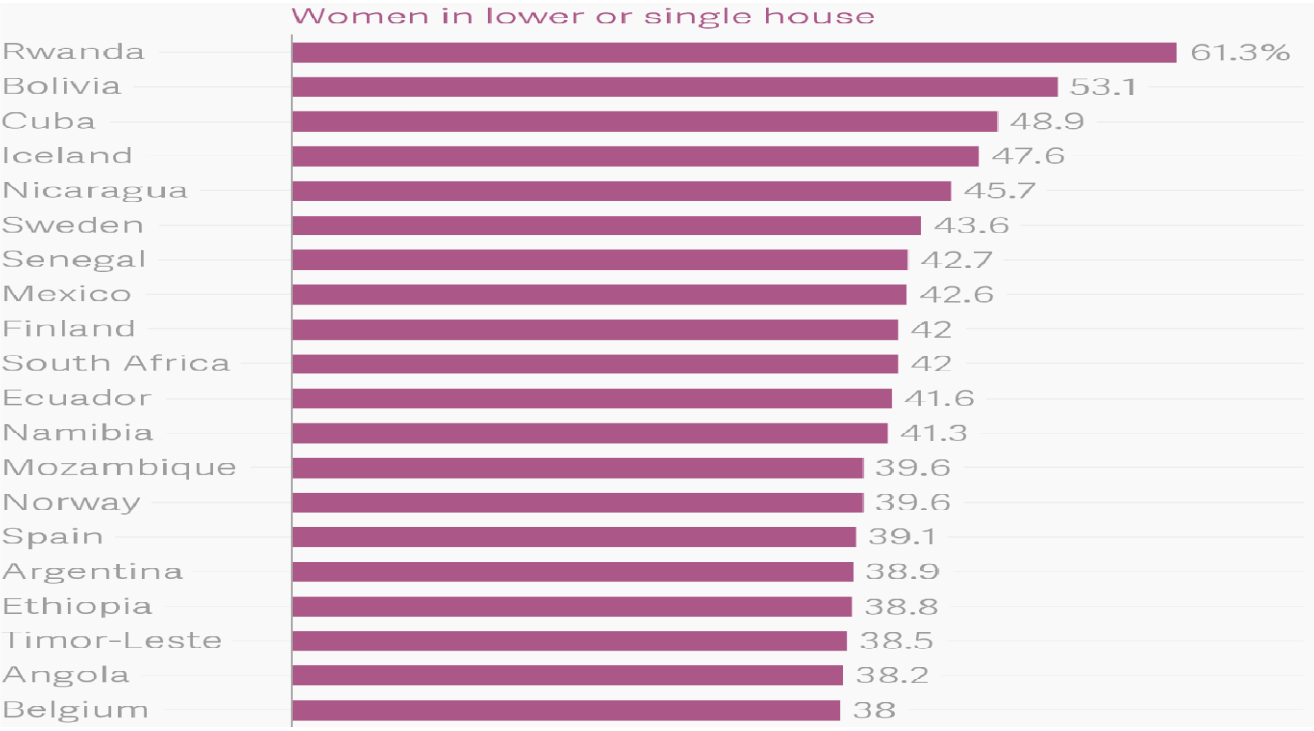


Figure 2: Countries With the highest number of women in parliament (Adopted from https://www.weforum.org/agenda/2018/10/ethiopia-s-new-50-women-cabinet-isn-t-just-bold-it-s-smart/)

The Figure given in figure (2), depicts Rwanda is arguably the most pro-woman democratic country in the world and this is very evident in practice. In the parliament, for example, women hold more than half the seats.

1.3. Gender Based Discriminations and Barriers to Overall Development

The type of discrimination women suffers make them to be at a disadvantage and thus give barriers to personal developments. Such barriers manifest from the home and extend into the larger society. Firstly, female gender suffers greater insecurity due to suppressed status and child trafficking labour and prostitution, inadequate facilities, poor representation in governance and inadequate access to microcredit, right issues and disinheritance.

Women are deprived and assumed to be adult; they experienced suppressed status by their male counterpart. Women find it difficult to bail people from police custody without male consent (Merritt, 2006). Traditionally since female child is often release to help with house chores in a relations household to hiring the child at exorbitant rate to foster parents, who in turn, subject the slave girl to labour or prostitution and child trafficking (NPC and UNICEF, 2001).

In addition to, change complex socio-cultural economic and political environment in Nigeria conspire to deny females access to certain right that foster development. This right issues and disinheritance whereby, the basic right of women and girl children to human dignity denied through cultural practices such as female genital mutilation (FGM) harmful widowhood practices, forced marriage early marriage, physical and emotional abuse by husband and males.

Sexual harassment at home and workplace is another problem that women have to contend with (NPC and UNICEF, 2001). Furthermore, women do not have adequate health facilities in some places including antennal care birth attendance and family planning service women and children are more susceptible easily preventable and communicable diseases due to ignorance, poverty, inability to act and take decisions without men consent (Eneh and Nkamnebe, 2011).

Moreover, women are poorly represented in governance as a result of traditional belief and cultural practices. Women are excluded from decision making and their interest are not often presented (Eneh and Nkamnebe, 2011).. Besides, women in rural areas are characterized by poverty, illiteracy, ignorance, lack of social and economic amenities and subsistence which prevent their access to microcredit (Eneh and Nkamnebe, 2011, Lopez-claros (2008) opined that the economy is not only a function of inadequate level of available finance but more dependent on our ability to tab into a society's reservoir of talents and skills.

There are some forms of traditional and religious issues which suppress developmental initiatives of women. In some African societies, it is abnormal for women to lead in any organisation. In the Muslim world, women are barred from carrying out so many functions in the society. A good example is driving of cars.

In Saudi Arabia, it is just of recent that women are allowed driving rights in the cities.

2. SDGS AND IMPLICATION FOR GENDER AND WOMEN DEVELOPMENT IN AFRICA

Africa is the only region in the world, where the absolute number of "missing" women has actually increased over the last two decades, large rates of maternal deaths and poor water, sanitation and health service (World Bank, 2012). Women are more likely to work in less productive sectors, less profitable areas, in low-wage or unpaid family employment or in the informal wage sector (World Bank, 2012). Women development in Africa is crucial since it affect the overall wellbeing. The development is concerned with societal wellbeing in terms of access to safe water, rate of poverty access to health services, access to sanitation, life expectancy at birth, infant and maternal mortality rate, population estimate, and the process of achieving transformation of the society, adult illiteracy, population estimate and gross domestic product (Worldbank, 2001).

The empowerment of women is needed in so as to narrow the gender gap and establish a level playing field between men and women for gender equality to be reached and maintain (UNECE, 2012). According Osagi (2001) an empowered women possess a sense of self-worth has the capability to define her own choices, has access to resources and a wide array of opportunities she can pursue as well as being able to persuade the direction of social change to fashion a more just economic and social order locally and internationally.

According to UNDP (2013) it is acknowledged that significant progress has been accomplished on many Millennium Development Goals (MDGs) such as poverty reduction, decrease in infant and child mortality and on education but inequalities in varied dimension including extensive environmental degradation, economic crisis with gender based inequalities being perceived as retarding progress on many development goals.

Sustainable development goals are universal in character which incorporates a range of key areas that were not fully covered in the millennium development goals such as energy, climate change that they reflect equally the economic, social and environment dimensions of sustainable development and the interconnections between them. The Millennium Development Goals (MDGs) came to an end in 2015 while progress has been made globally. Africa is off-track in achieving most of the targets, so the millennium development goals will remain relevant beyond 2015. The development of sustainable development goals should recognize the need for complementary with the Millennium Development Goals.

Furthermore, United Nations Economic Commission for Africa sustainable development encompasses the inter-linkages of the three dimensions of economic growth, social development and environment sustainability. The environment is considered the source of life and gives rise to economic activities which in turn sustain

social development. Without growth, there will be no social development.

Moreover, sustainable development tends to achieve a balance in interrelationships and three dimensions. Economic growth, therefore has to be environment-friendly and socially responsible economic growth to be sustainable efforts need to be directed to an efficient and sustainable use of natural resources, agricultural practices that are environment-friendly, renewable energy development less carbon intensive production of goods and services.

In addition, In Africa-North Africa, West Africa, Central Africa, Eastern Africa, Southern Africa are identifying as key sub-regions are for sustainable development priorities. Since many women in Sub-Saharan African have little degree of control over household decisions or about how their earnings are spent targeting to intervene for women during the defining adolescent stage have the ability to prevent risky sexual behaviour, encourage girls to stay in school or engage in skill trained to combat gender inequality (World Bank, 2012).

3. RECOMMENDATIONS

Various national governments particularly in Africa still believe in the traditions of keeping women from the fore of governance at all levels from the home up to the national level. This old idea should be discarded and reformed in line with affirmative actions passed at the United Nation meets. In summary, the followings are hereby recommended:

- Keeping women as labourers to fend for the family should be discouraged. By nature, women are hardworking and pleasant in ensuring that the family is cared for. This humble disposition should not be unduly abused.
- Ensuring appropriate implementation of legal regulatory and policy frameworks for critical building of women in decision making in politics and labour forces. More women should be encouraged to take leading roles in the communities all over the world.
- Right to good livelihood through reduction in insecurity of women due to inadequate facilities such as health and credit loan.
- Bad traditional vices of female genital mutilations should be discouraged. It is good news that some national governments have legislated on this.
- Self-worth among women will be promoted through women empowerment and judicious use of environmental resources for sustainable development.
- Inheritance rights of women should be guaranteed so that they can have access to properties of their parents and spouses after death. Inability to have access to these properties do affect their livelihoods and finance.

REFERENCES

Afolabi, A. (2013). Women and Political Empowerment in Nigeria through Changing Scenes: From Pre-Colonial to Present. Ibadan Journal of Peace and Development, Vol 2, No 1 June.

African Gender Index (AGI) (2015). Empowering African Women: An agenda for Action: http: www.afdb.org on 13.3.16.

Amadi, L. And Amadi, C. (2015). Towards Institutionalizing gender equality in Africa: How effective are the global gender summits and convention? A critique. African Journal of Political Science and International Relations, 9(1): 12 – 26.

Bouilly, E. and Rillon, O. (2016). Relire les décolonisations d'Afrique francophone au prisme du genre. Le Mouvement social, 155: 3–16.

Bouilly, E., Rillion, O. And Cross, H. (2016). African women's struggles in a gender perspective. Review of African Political Economy, 43 (149): 338 – 349.

Demirgüç-Kunt, A., Klapper, L.F. and Singer, D. (2013). Financial Inclusion and

Legal Discrimination Against Women: Evidence from Developing Countries."World Bank Policy Research Working Paper 6416, World Bank, Washington.

Eneh, O.C. and Nkamnebe, A.D. (2011). Gender gap and sustainable human development in Nigeria: issues and strategic choices. Asian Journal of Rural Development.

Fawcett Society (2012). Modern workplaces, maternity rights and and gender equality. https://www.fawcettsociety.org.uk/modern-workplaces-maternity-rights-and-gender equality.

Fayemi Bisi Adeleye (2013). The Role of Feminist Theory and Practice in Creating Agendas for Transformation. Paper presented at the Ikogosi Graduate Summer School, Ekiti

Geiger, S. (1990). Women in Nationalist Struggle: TANU activists in Dar es Salaam. International Journal of African Historical Studies, 20 (1): 1–26.

Gonzales, C., Jain-Chandra, S., Kochhar, K. and Newiak, M. (2015). Fair Play: More Equal Laws Boost Female Labor Force Participation." IMF Staff Discussion Note 15/02, International Monetary Fund, Washington.

https://www.weforum.org/agenda/2018/10/ethiopia-s-new-50-women-cabinet-isn-t-just-bold-it-s-smart/

https://www.newtimes.co.rw/lifestyle/political-participation-women-what-does-mean-gender-equality

Igbuzor, O. (2014). Building Bridges of Opportunities for Women: 2015 and Beyond. A paper Presented at the National Women strategies conference, Abuja 18th-19th.

International Labour Office. (2000). ABC of women worker's rights and gender equality. Geneva: ILO. Page 48.

International Labour Organization (ILO) (2001). Report of the Director General - Equality at work: The continuing challenge - Global Report under the follow-up to the ILO Declaration on Fundamental Principles and Rights at Work.

Kimari, W., Otiono, N., Moorsom, T., Rutherford. And Tubb, D. (2014). Women's rights and gender equality in Africa. Nokoko, Institute of African Studies, Carleton University, Ottawa, Canada.

Klugman, J. (2015). Gender at work in Africa: Legal Constraints and Opportunities for Reform, Harvard University and Sarah Twigg, Consultant IFC, Working Paper 3.

Lawn 202/2002, Art. 10(4) and Art.37 (2017). Details of indicators for labour exploitation. Romanian Law Online (in Romanian).

Lopez-Claros, A. (2008). Women's equality can improve economic performance. One World, 19: 4-13.

Lucigi, A. (2018). Gender equality is so much more than a goal.

http:/www.africa.undp.org/content/rba/en/home/blog/2018/ gender-equality-is-so-much-more than-a-goal-html

NPC and UNICEF (2001). Children's and Women's Rights in Nigeria: A Wake-up Call, Situation Assessment and Analysis 2001. National Planning Commission and United Nations Children's Fund, Abuja.

Oni, E.O. (2014). The dynamics of women political emancipation and political participation in Nigeria. Journal of Sustainable Development in Africa, 16 (3): 99 – 112.

OSAGI (2001). Important Concepts underlying Gender Mainstreaming", http://www.un.org/womenwatch/osagi/pdf/factsheet2.pdf.

Schmidt, E. (2002). Emancipate Your Husbands! Women and Nationalism in Guinea, 1953–1958. In Women in African Colonial Histories, edited by J. Allman, S. Geiger and N. Musisi, 283–304. Bloomington: Indiana University Press.

Scott, J.C. (1990). Domination and the Arts of Resistance. Hidden Transcripts. New Howen, CN and London: Yale University Press.

United Nations Development Programme (UNDP) (2013). Powerful Synergies: Gender Equality, Economic Development and Environmental Sustainability. http: www.udp.orgon 19.3.16

UN Economic and Social Council (2017). Progress towards the Sustainable Development Goals: Report of the Secretary-General (E/2017/66).

http://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-5-gender-equality

United Nations Economic Commission for Europe UNECE (2012). Empowering women for Sustainable development. http: www.unece.org on 22.3.16.

World Bank Report (2001). Engendering Development through Gender Equality in Rights, Resources, and Voice. http: www.worldbank.org on 22.3.16.

World Bank (2012). Improving gender equality in Africa.

http: www. worldbank.org/en/region/afr/brief/improving-gender-equality-in-africa.

Skill-Oriented Education And Career Competence Among Postgraduate Students In University Of Lagos, Nigeria

Oshionebo, Esther Emike [1 *] Dike, Michael Chidi[1]
[1] Department of Educational Management,Faculty of Education, University of Lagos, Nigeria
([*]Author for correspondence: eoshionebo@unilag.edu.ng)

Abstract: University education is a fundamental tool used for empowering the citizens with high-level technical skills and abilities that can be used for national development. Skilled-oriented education is fundamental to the attainment of educational goals and objectives. For these set of skills, knowledge and capabilities acquired at the university level will enhance the employability status and career competence of individuals. The study examined skill-oriented education and career competence among postgraduate students in University of Lagos, Nigeria. The study raised two research questions and hypotheses. The descriptive survey research design was adopted for the study. The study focused on postgraduate students in University of Lagos, and the total population of the study was 7,417 as at 2017/2018 academic session. Using multi-stage sampling technique, the researchers selected 810 postgraduate students for the study. The research instrument used to collect data for the study was a self-developed questionnaire. The research instrument was validated by two professors in the department of Educational Management. The researchers administered 810 copies of the questionnaire and 800 copies (representing 98.8% return rate) were in usable state. The data collected were analyzed using descriptive statistics (specifically: mean and standard deviation) and inferential statistics (specifically: Pearson Product Moment Correlation). Findings from the study showed that: personal management skill, information technology skill are related to career competence. The study recommends that the National Universities Commission should ensure that the universities in Nigeria should fully implement practical oriented curriculum at all programmes.

Keywords: skill-oriented education, career competence, personal management, information technology skill

1. INTRODUCTION

Education is a veritable instrument for the development of individuals' knowledge, mind, skills, capabilities and character for sustainability of national development. It is also a potent tool that can be used to effectively and efficiently empower an individual socially, morally, economically, technologically, physically, mentally and emotionally in order for such an individual to be useful to self, as well as the nation at large. Education has shown that it's the foundation of all sector development in the country. This means that, education plays significant roles in the development of

humans for all sectors of the economy. Therefore, there is no nation that attains her desired national development sustainability without the university education.

University education is saddled with responsibilities of human training and development. Adebakin, Ajadi & Subair (2015) opined that university education is the main instrument to prepare individuals for a rapidly-changing, increasingly-demanding world of work and to improve their employability. This is a type of formal training and development for students that have successfully completed their secondary education. These students are expected to be a minimum of sixteen years old and are expected to spend a minimum of four years in the university education. University education is a fundamental tool used for empowering the citizens with high-level technical skills and abilities that can be used for national development. This level of education diversifies its programme in order to develop the necessary manpower for the nation. These programmes in the universities are expected to reflect the manpower requirements and knowledge production of the nation. In the attainment of university of education, there is the need to ensure that the diversified programmes are centred on skilled-oriented education.

Skilled-oriented education is fundamental to the career competence of individuals, as well as, attainment of educational goals and objectives. These set of skills, knowledge and capabilities acquired at the university level will enhance the employability status and career competence of individuals. Skilled-oriented education is the study of abilities for adaptive and positive behaviour that enable individuals to effectively handle the demands and challenges of everyday life (Borah, 2016). Maclean and Wilson's (as cited in Junejo, Sarwar & Ahmed, 2017) posited that skilled-oriented education is the study on the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life. Skilled-oriented education is the process of emphasizing on the application of relevant knowledge and attitudes required for employment competence in a particular occupation or cluster of related occupations in any field of social and economic activities (Fien, Rupert & Man-Gon, 2009). Skilled-oriented education involves the development of individuals' work-related knowledge, attitudes, understanding and character in order for such persons to effectively and efficiently attain career competence. This means, skilled-oriented education is the development of sets of abilities, capabilities, knowledge and personal attributes that can make an individual to be successful in the chosen career to the benefit workforce, community and nation's economy. Chang's diary (as cited in Adebakin, Ajadi & Subair, 2015) reported that an individual's skilled orientation depends on the ability to secure and retain employment, ability to improve productivity and income-earning prospect of such individuals.

Skill-based education consist of a set of transferable skills and behaviours that are necessary for everyone to be employable and these skills are: communication, team-working, problem-solving skills, initiative and enterprise skill (being self-motivated),

planning and organizing, self-management skills, learning skills/ability to learn and adapt and technology (ICT) (Famiwole, Oke & Amadi, 2012). Ritika (2016) posited that the following type of skills should be include in the curriculum: analysing skills, decision making skills, adaptability skills, negotiating skills, organising and planning skills, persuading skills, leadership skills and initiative skills. The mapping of skilled attributes shows that, in the main, most universities tend to focus on seven clusters of attributes, including: written and oral communication, critical and analytical (and sometimes creative and reflective) thinking, problem-solving (including generating ideas and innovative solutions), information literacy, often associated with technology, learning and working independently, learning and working collaboratively, and ethical and inclusive engagement with communities, cultures and nations (Oliver, 2011).

In recent time, there has been increasing national concern in Nigeria, over the continuously rejection of university graduates by employers of labour. There has been disturbing statement that university graduates do not possess the relevant and necessary skills that will be needed for career competence. In Nigeria, there seems to be very low implementation of skilled-oriented education that will make university graduates to be competent in their chosen careers. It could be that these individuals in the university are either weak or uninterested to develop their skills or the curriculum implemented at the university lacks the perquisite skilled-oriented programmes. Individuals without the right skills and abilities for the world of work may have challenges handling the demands of career competence. The research of Adebakin (2014); Adams (2006) stated that many of the university graduates are poorly prepared for employment competence and there is a huge mismatch in the training of undergraduates and societal labour needs. Akanmu (2011) also supported that, many graduates who fulfilled employment requirements in spite of everything; their employers raised serious concerns about their skills and fit for the job. Pitan and Adedeji (2012) also reported that an overall mismatch skills of 60.6% among employed university graduates, have critical deficiencies in communication, information technology, decision-making, critical thinking, interpersonal relationship, entrepreneurial, technical and numeracy skills.

An employee may not have flourish career competence if he or she does not acquire the relevant indicators of personal management skill such as: self-esteem, self-motivation, goal setting, work responsibility, work adaptability and ability to learning continuously at work. An employee may also encounter some challenges on career competence if he or she does not know how to organize tasks on short, medium and long time management. Hence, this study focused on skill-oriented education and career competence among postgraduate students in University of Lagos, Nigeria.

The quality of skilled-oriented education is the capability of university graduates to satisfy recruitment and selection process, as well as, acquire the ability to perform and

deliver on the job with little or no problems to employers. But, it is unfortunate that in Nigeria many university graduates roam about the streets unduly without commiserate job to show. It is not that there is no job but these graduates lack the relevant and necessary skills needed for career competence. It seems that many of the university graduates in Nigeria are mismatch to the labour market requirements of career competence. It also seems that many of these university graduates do not acquire the required and relevant skills needed to manage one's self, as well as, conform to the daily routine and demands of work.

There has been national outcry by employers of labour that many university graduates are known to be 'paper tigers' and half baked. For many of these graduates are unfit for career competence, for they lack general industrial skills needed for the world of work. This seems that the implementation of university curriculum does not suit the conditions, abilities, needs and capabilities of university graduates.

In the light of this observed problem, the researchers examined how skilled-oriented education (personal management skill and information technology skills) relate to career competence among postgraduate students in University of Lagos, Nigeria.

2. REEARCH QUESTION

The following research questions were postulated to guide the study:

1. In what way does personal management skill relate career competence among postgraduate students in University of Lagos, Nigeria?
2. What is the relationship between information technology skill and career competence among postgraduate students in University of Lagos, Nigeria?

3. RESEARCH HYPOTHESIS

The following null hypotheses were formulated to guide the study:

1. There is no significant relationship between personal management skill and career competence.
2. Information technology skill and career competence are not significantly related.

4. RESEARCH METHODOLOGY

Co-relational survey research design was used to generate, analyse and interpret existing relationship between skilled-oriented education and career competence among postgraduate students in University of Lagos, Nigeria. The total population for the study was 9,070 postgraduate students (as at 2017/2018 academic session) in University of Lagos. Multi-stage sampling technique was used to select 810 postgraduate students for the study. The research instrument used to collect data for the study was self-developed questionnaire. The research instrument was validated by two Professors in the department of Educational Management. The researchers administered 810 copies of the questionnaire and 800 copies (representing 98.8% return rate) were in usable state. The data collected

were analyzed using descriptive statistics (specifically: mean and standard deviation) and inferential statistics (specifically: Pearson Product Moment Correlation).

5. RESULT

5.1. Research Question One: In what way does personal management skill relate career competence among postgraduate students in University of Lagos, Nigeria? Table 1 shows the mean and standard deviation scores of participants' responses on personal management skill. The mean values of the statements raised were above the acceptable mean score (2.50), which means the participants agreed to all the statements raised for personal management skill.

5.2. Research Question Two: What is the relationship between information technology skill and career competence among postgraduate students in University of Lagos, Nigeria? Table 2 shows the mean and standard deviation scores of participants' responses on time management skill. The mean values of the statements raised were above the acceptable mean score (2.50), which means the participants agreed to all the statements raised for time management skills.

Table 1: Mean and Standard Deviation Scores of participants' responses on Personal Management Skill and career competence among postgraduate students

S/No	Statement	Mean	SD	Decision
1	Teaching university students on necessary professional attitude indicators needed at the world of work.	2.86	0.28	Agreed
2	Teaching university students the required work responsibilities will enhance their career competence.	3.00	0.26	Agreed
3	Work adaptability training for university students will enhance their career competence.	2.92	0.51	Agreed
4	Training the university students on the emphasis of periodic professional development will promote their career competence.	2.77	0.29	Agreed
5	Career competence of university students will be enhanced if they are trained on self-motivation indicators.	3.01	0.51	Agreed
6	Training university students on temper control strategies will enhance their professional competence.	2.75	0.54	Agreed
7	Emphasising on professional integrity to university students will help them to flourish in their chosen career.	3.05	0.26	Agreed

Mean Mid point is 2.5

Table 2: Mean and Standard Deviation Scores of participants' responses on information technology skill and career competence among postgraduate students

S/No	Statement	Mean	SD	Decision
1	Teaching university students on basic computer skills will enable them to integrate properly into the world of work.	3.00	0.52	Agreed
2	Career competence of university graduate will be enhanced if they are taught how to manage relevant office records online.	2.88	0.33	Agreed
3	Professional work completion of university graduates will be enhanced when they learnt about online communication.	3.06	0.52	Agreed
4	My participation in classroom discussions on information technology will enhance my future competence at work.	3.22	0.43	Agreed
5	Using video conferencing to participate in a group project will help career integration after university education.	3.13	0.54	Agreed
6	Teaching students on desktop publishing skills will help their future career competence.	3.33	0.41	Agreed
7	Students' knowledge on advanced search techniques on how to locate information in a database will prepare them for the world of work.	3.21	0.50	Agreed

Mean Mid point is 2.5

5.3. Test of Research Hypothesis

5.3.1. Research Hypothesis One: There is no significant relationship between personal management skill and career competence. Evidence from Table 3 shows that the calculated r-value (0.112) is greater than the critical r-value (0.09) given 798 degree of freedom at 0.05 significant level. The null hypothesis which states that there is no significant relationship between personal management skill and career competence is rejected; while the alternative hypothesis is accepted. This means, personal management skill is significantly related to career competence among postgraduate students in University of Lagos.

Table 3: Relationship between personal management skill and career competence

Variables	N	Mean	SD	df	r-cal	r-critical	Decision
Personal management skill	800	13.52	2.38	798	0.112	0.09	H_o: Rejected
Career competence		30.65	2.70				

5.3.2. Research Hypothesis Two: There is no significant relationship between information technology skill and career competence. Evidence from Table 4 shows that the calculated t-value (0.131) is greater than the critical t-value (0.09) given 798 degree of freedom at 0.05 significant level. The null hypothesis which states that there is no significant relationship between information technology skill and career competence is rejected; while the alternative hypothesis is accepted. This means, information technology skill is significantly related to career competence among

postgraduate students in University of Lagos.

Table 5: Relationship between information technology skill and career competence

Variables	N	Mean	SD	df	r-cal	r-critical	Decision
Information Technology Skill	800	17.73	2.24	798	0.131	0.09	H_o: Rejected
Career competence		30.65	2.70				

6. DISCUSSION OF FINDINGS

The research hypothesis one shows that there is a significant relationship between personal management skill and career competence is rejected; while the alternative hypothesis is accepted. This means, personal management skill is significantly related to career competence among postgraduate students in University of Lagos. The findings of the study show that mean values of the statements raised were above the acceptable mean score (2.50), which means the participants agreed to all the statements raised for personal management skill. Majority of the participants agreed on the following statement: teaching university students on necessary professional attitude indicators needed at the world of work, teaching university students the required work responsibilities will enhance their career competence, work adaptability training for university students will enhance their career competence, training the university students on the emphasis of periodic professional development will promote their career competence, career competence of university students will be enhanced if they are trained on self-motivation indicators, training university students on temper control strategies will enhance their professional competence, and emphasising on professional integrity to university students will help them to flourish in their chosen career. The findings of the study corroborate with study of Drucker (2011); McNamara (2010) which generally showed that personal management elements are essential to employees at workplace, for these elements will enhance their professional competence.

The research hypothesis two shows that there is a significant relationship between information technology skill and career competence is rejected; while the alternative hypothesis is accepted. This means, information technology skill is significantly related to career competence among postgraduate students in University of Lagos. The findings of the study show that mean values of the statements raised were above the acceptable mean score (2.50), which means the participants agreed to all the statements raised for time management skill. Majority of the participants agreed on the following statement: teaching university students on basic computer skills will enable them to integrate properly into the world of work; career competence of university graduate will be enhanced if they are taught how to manage relevant office records online, professional work completion of university graduates will be enhanced when they learnt about online communication and my participation in classroom discussions on information technology will enhance my

future competence at work among others. The results of the study are in line with the studies: Adebakin et al (2015); Oliver (2011); Ritika (2016) which revealed that effective time management will enable university graduates to know how to assign time slots to professional activities as per their level of importance. This will enhance graduates professional critical thinking and competence.

7. CONCLUSION

The research findings show that skill-oriented education relate to career competence among postgraduate students in University of Lagos, Nigeria. Based on the findings of this study, the independent variable elements (such as personal management skill and information technology skill) are significantly related to career competence. Skilled-oriented education is necessary for the survival and adaptation of university graduates in Nigeria. It is the pivotal to career success of any individual. The reorganization of university education system will equip graduates with necessary and relevant skills needed for professional creative thinking, critical thinking and decision making.

8. RECOMMENDATION

The study recommends that:

1. Universities should periodically conduct surveys on professional skills requirement in order to identify real skills needed for the world of work.
2. Every programmes in the university should be laced with necessary skilled-oriented elements that are imperative to professional success.
3. The National Universities Commission should ensure that the universities in Nigeria should fully implement practical oriented curriculum at all programmes.

REFERENCES

Adams, A. V. (2006). The role of skills development in the transition to work: A global review. Background Paper for the World Development Report 2007.

Adebakin, A. B. (2014). Assessment of university graduates' employability and productivity in public and private organisations in Lagos State. Unpublished M.A (Ed) thesis, Department of Educational Management, Obafemi Awolowo University, Ile-Ife.

Adebakin, A.B., Ajadi, O.T. & Subair, S.T. (2015). Required and possessed university graduate employability skills: Perceptions of the Nigerian employers. World Journal of Education, 5(2): 115-121.

Akanmu O 2011. Graduate employment and employability challenges in Nigeria. Paper presented at the British Council Global Higher Education Conference, Hong-Kong, March 12, 2011.

Borah, G.K. (2016). Importance of skill based education on generating employment, special reference to Subdivision Majuli, Jorhat, Assam. International Journal of Social Science and Humanities Research, 4 (1), 668-672.

Drucker, P. 2011. Management; tasks, responsibilities, practices. New York: Routledge.

Fien J, Rupert M, & Man-Gon, P. (2009). Work, learning and sustainable development: Opportunities and challenges. Dordrech: Springer.

Junejo, M.I., Sarwar, S. & Ahmed, R.R. (2017). Impact of in-service training on performance of teachers: a case of STEVTA Karachi Region. International Journal of Experiential Learning & Case Studies, 2(2), pp. 50-60.

McNamara C. (2010). Building basic skills in management and leadership. Retrieved from http://managementhelp.org/freebusinesstraining/leadership.htm.

Pitan, O.S. & Adedeji, S.O. (2012). Skills mismatch among university graduates in Nigeria labor market. US– China Education Review, 2(1): 90–98

Ritika (2016). Skill based learning: Necessity for employability. Imperial Journal of Interdisciplinary Research, 2(4), 94-96.